TECHNOLOGY DEPARTMENT

Construction Methods

DECEMBER 1948

A McGRAW-HILL PUBLICATION

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DEC 16 1948
DETROIT

Big siphon on Delta-Mendota Canal poured in alternate sections with inside and outside traveling forms.

Soil-Cement Stabilization on Peoria Streets and Santa Ana Freeway
***Also:* Tunnel Driving Through Old Mine Workings**

You Could Save This Much Steel from Every End Hook Eliminated!

. . . if Building Codes Kept Up with Hi-Bond Design

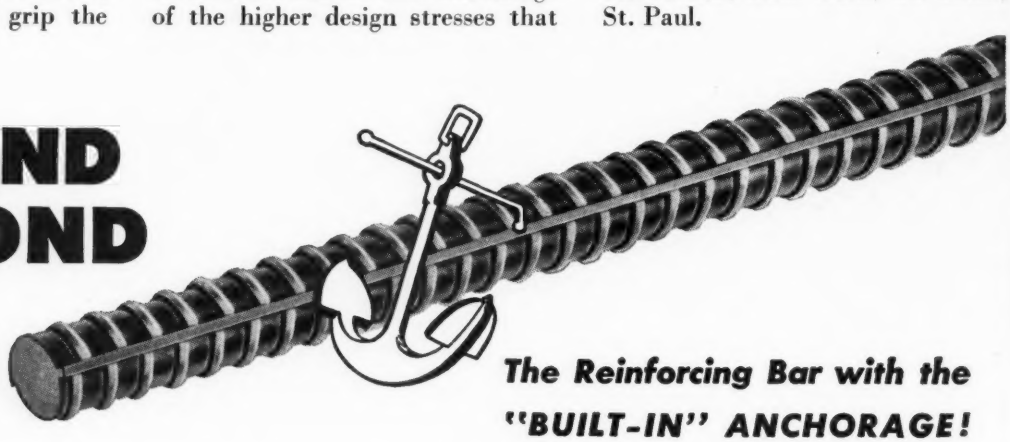
Tests made by the National Bureau of Standards have definitely proved that a straight section of Inland Hi-Bond reinforcing bar provides greater anchorage than hook anchors made of ordinary deformed bars . . . that with Hi-Bond, hook anchorage is unnecessary in most applications.

Hi-Bond's greater bonding strength is due to its deep, reversed, double-helical ribs that grip the concrete and prevent slippage. As a result of Hi-Bond's development, it will be only a question of time before our national building codes are changed to eliminate end hooks in most cases. The change will mean a saving in steel, a saving in bending costs, and simpler installation.

Hi-Bond also makes it possible to use more of the potential strength of the steel and to take advantage of the higher design stresses that tomorrow's building codes will permit, yet it costs no more than ordinary reinforcing bars.

To make larger tonnages available to you, we have licensed other steel companies to make this superior bar. INLAND STEEL CO., 38 S. Dearborn St., Chicago, Ill. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND HI-BOND



INLAND STEEL

The Reinforcing Bar with the "BUILT-IN" ANCHORAGE!

OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES

New UNIT 1520 Self-Propelled RUBBER-TIRED CRANE

15 TON CAPACITY

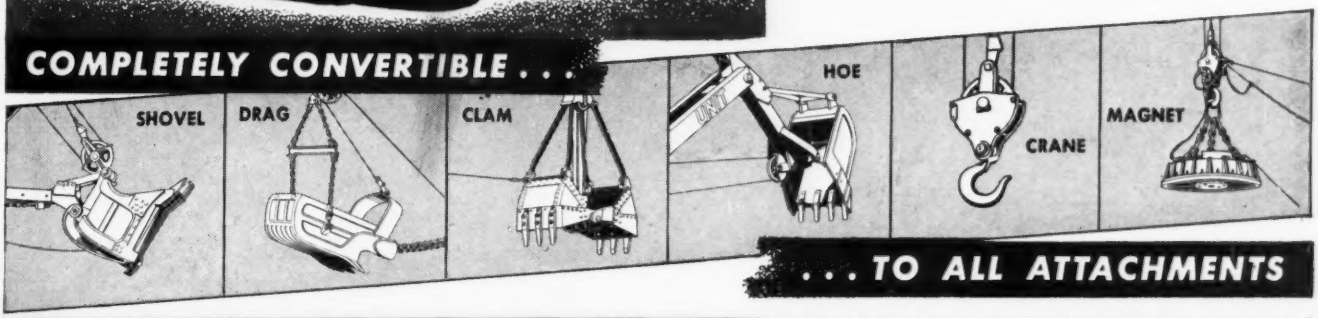
This 50,000 pound Mobile Crane is a completely new member of the UNIT Crane and Shovel line. Designed for both "on and off" highway operation. So compact, it works efficiently even in small, cramped quarters, "in or out" of the yard.

- Rugged . . . Perfectly Balanced
- Hook Roller Construction
- Controlled and Operated by ONE Man
- Powered by ONE Engine
- Hydraulic Steering . . . Air Brakes and 4 Speed Air-Actuated Transmission
- Heavy Duty, yet operated with remarkable SPEED . . . SAFETY . . . ACCURACY . . . ECONOMY!

UNIT CRANE & SHOVEL CORP.

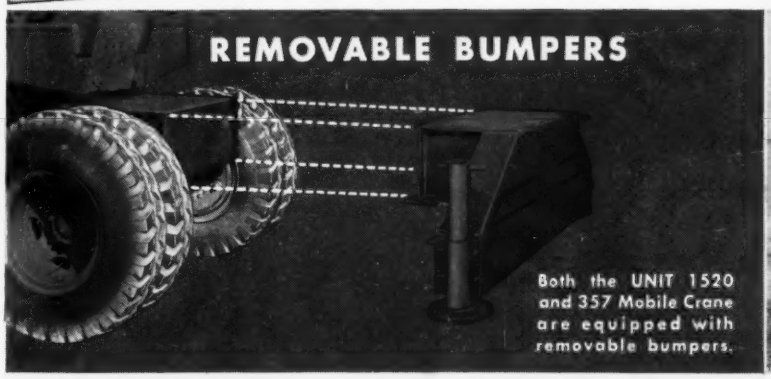
6305 W. BURNHAM STREET
MILWAUKEE 14, WISCONSIN, U. S. A.

COMPLETELY CONVERTIBLE . . .



. . . TO ALL ATTACHMENTS

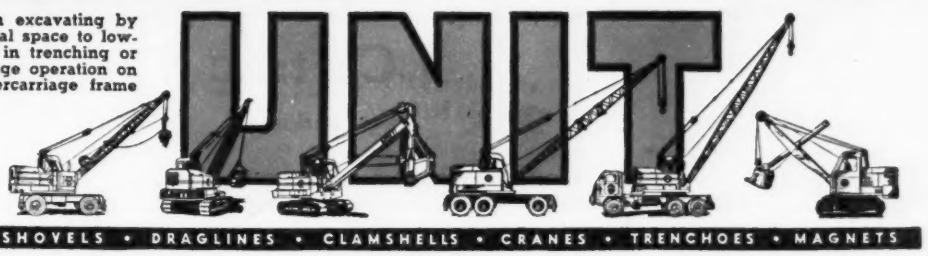
REMOVABLE BUMPERS



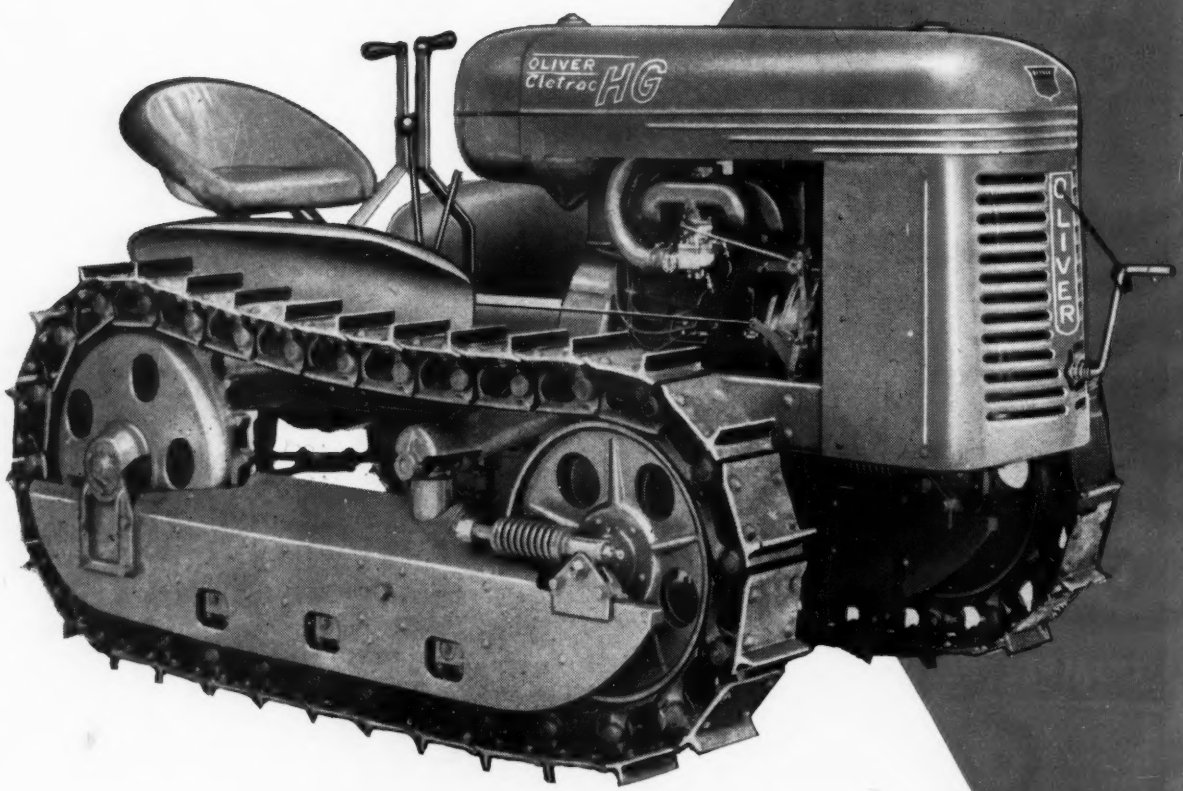
Both the UNIT 1520 and 357 Mobile Crane are equipped with removable bumpers.

Greater digging efficiency is attained in excavating by removal of one bumper. Permits additional space to lower boom, thus increasing digging depth in trenching or other excavating jobs. Provides close-range operation on shovel work. Bumper is bolted to undercarriage frame and its removal is a simple operation.

You can tell it's a UNIT by the FULL VISION CAB. There's no other cab like it.



A LITTLE TRACTOR...



Here's the smallest crawler tractor in the field, but it's big in performance . . . big in profit possibilities for you!

The Oliver "Cletrac" HG is a husky little giant small enough to do a lot of jobs without the high operating costs of a larger tractor . . . big enough to pack a real wallop. It gets you into places you can't reach with bigger equipment . . . jobs that formerly had to be done by manual labor.

Digging foundations . . . hauling equipment . . . fill-in work . . . landscaping . . . small trail building and approach roads . . . sidewalk snow removal, the Oliver "Cletrac" HG with its line of auxiliary equipment is a natural for these and many other jobs. It gets in and out of tight spots with ease . . . it's fast and sure on its feet . . . it's a time-saving, cost-cutting unit that will be a big help on all your jobs.

The Oliver "Cletrac" HG is built to the same high standards of quality that characterize the big tractors in the Oliver "Cletrac" line. It's rugged . . . low in operating and maintenance costs . . . packed with power . . . and designed for maximum operator comfort.

Cletrac

a product of

The OLIVER Corporation

INDUSTRIAL DIVISION • 19300 EUCLID AVENUE • CLEVELAND 17, OHIO

with Big possibilities for YOU!

For all the facts on the HG, see your Oliver "Cletrac" Distributor or write for your copy of the new Model HG catalog.

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BANISH YOUR WIRE ROPE PROBLEMS

...With The Laughlin "FIST-GRIP" SAFETY CLIP

Won't Crimp or Crush... rope lasts longer.

Simple, easy to put on... saves time, manpower.

100% Foolproof... can't go on backwards.

Super Grip... two clips do the work of three U-Bolts.

Extra Strength and Safety... clip and bolts drop-forged.

Distributed through mine, mill and oil supply houses. Write for Catalog 140 . . . up-to-the-minute data on industrial fittings.

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Dept. 1, Portland 6, Maine

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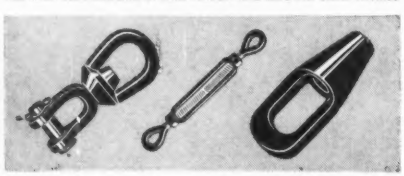
THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



Construction Methods

THE CONSTRUCTION MAGAZINE WITH PICTURE POWER

Established 1919

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ON THE COVER: Mountain House Road Siphon on the Delta-Mendota Canal, Central Valley Project, Calif., makes an interesting picture as alternate sections of the big aqueduct line up in various stages of construction. Both inside and outside forms ride on travelers. Morrison-Knudsen Co., Inc., Boise, Idaho, and M. H. Hasler, Los Angeles, are joint contractors on the $426,800 siphon for U. S. Bureau of Reclamation. They also have a $2,600,000 section of the adjoining canal which will carry Shasta Dam water from Tracy Pumping Plant to San Joaquin Valley forms.

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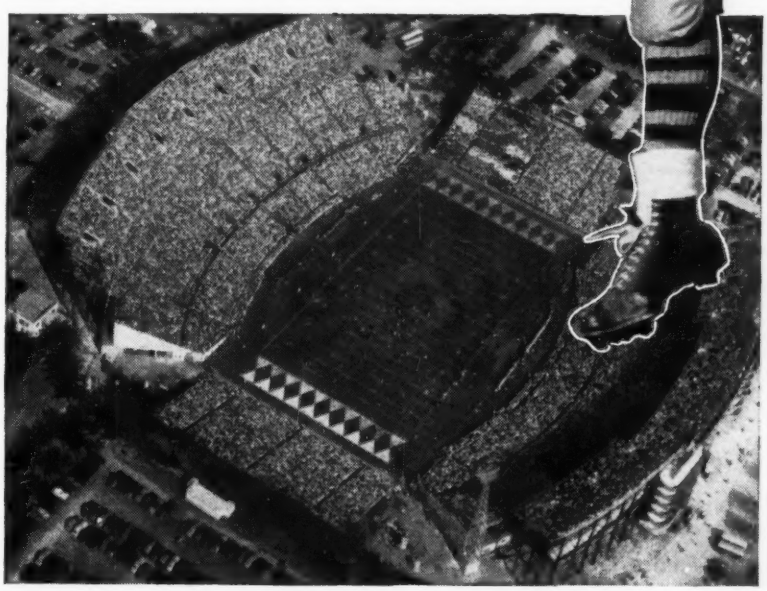
BOWL WINNERS, BOTH!

LONE STAR AND 'INCOR' CEMENTS SPEED ADDED SEATING CAPACITY AT TWO FAMOUS BOWLS

COTTON BOWL ADDS 22,462 SEATS

A fine, new Cotton Bowl of durable, fire-safe concrete, with 68,000 seating capacity, replaces the old structure in the State Fair Grounds at Dallas, Texas. Built of cast-in-place concrete, at a cost of $1,200,000 . . . Lone Star Cement was used throughout. Owner, **STATE FAIR OF TEXAS;** Contractor, **VILBIG BROS., INC.;** Engineers, **CHAPPEL, STOKES & BRENNEKE,** all of Dallas.



AFTER the final whistle in the Penn State-Southern Methodist 13-13 tie, last New Year's Day, work began on a fine new concrete Cotton Bowl at Dallas. Concrete made with Lone Star Cement was pumpcreted into place ...good job organization completed the attractive, fire-safe structure in time for the 1948 opening kickoff.

In Miami, the Orange Bowl's main deck was enlarged and a second deck added. The design consisted of steel framework, with precast concrete risers and treads. 'Incor' 24-Hour Cement made it possible to complete the job in 75 working days. They were precasting concrete as late as last Christmas Day, but dependable 'Incor' high early strength had the Bowl ready for the New Year's Day game.

Two Bowl projects, similar in size and scope ...one, cast-in-place Lone Star concrete... the other, precast 'Incor' concrete. In both cases, quality cement provided the right answer. It pays to select cement to fit the job... 'Incor'* where time is a principal factor... Lone Star, for normal schedules. You gain either way, because the better the cement, the better the concrete.

*Reg. U.S. Pat. Off.

ORANGE BOWL ADDS 23,000 SEATS

Miami's Orange Bowl was enlarged to 60,000 seating capacity, at a cost of $1,400,000. 40,000 lin. ft. of precast concrete joists and 100,000 sq. ft. precast concrete treads were bolted together and welded to the steel frame. 'Incor' made it possible to complete the job on time. Owner, **CITY OF MIAMI, FLORIDA;** Contractor, **GUST K. NEWBERG CONSTRUCTION CO.,** Chicago and Miami; Precast Concrete Joists and Treads made by, **MAULE INDUSTRIES, INC.,** Miami Beach.

LONE STAR CEMENT CORPORATION
LONE STAR PORTLAND CEMENT
'INCOR' HIGH EARLY STRENGTH PORTLAND CEMENT
"INCOR"
LONE STAR AIR-ENTRAINING PORTLAND CEMENT
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LONE STAR CEMENT CORPORATION

Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. KANSAS CITY, MO • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

84-Inch PIPE LINE for City of Orlando, Fla. — Contractor: Lewis & McDowell, Inc., New York

Bone Dry Digging next to a Lake

Remarkable? Not at all! When a MORETRENCH WELLPOINT SYSTEM moves in on a wet job, water moves out fast!

This pipe line connects three lakes. 13 feet of water in sand, silt and clay made pumping of vital importance. To make sure that work would go ahead "in the dry," the contractor chose MORETRENCH. Sheeting eliminated. Time and money saved.

If you have water on your mind get MORETRENCH on the job!

MORETRENCH CORPORATION

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PROGRESS & PROFITS

with

EUCLIDS

Built for dependable performance in heavy off-the-road service, Euclid equipment keeps jobs moving ahead of schedule under a wide range of operating conditions. Owners agree that there's no job too big or too tough for "Eucs." Where extra power and capacity are required, it's the plus-performance of Euclids that means progress!

Because of their top-notch performance and long life, Euclids haul more tons or yards at less operating cost. Ample power and speed for long or short hauls... quick, clean dumping of loads... and low maintenance costs add up to efficient performance on heavy earth moving and mining operations. It's the plus-performance of Euclids that means profits!

The EUCLID ROAD MACHINERY Co.
CLEVELAND 17, OHIO

EUCLIDS *Move the Earth*

25 m.p.h. "D" ROADSTER

Builds access roads

Ideal for small-yardage jobs where it usually costs more to move in major excavating equipment than it costs to move the dirt. With a self-loading "D" Roadster, you can build access roads fast. One man does it . . . earns big savings on every assignment.

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You'll find profitable "off-season" work stockpiling coal around utilities, steel mills, and other big industrial plants with 9-ton capacity "D". Compacts to prevent fires . . . loads out of stockpiles, feeds bunkers, grizzlies. Also handles crushed stone, cinders, fertilizer, chemicals, etc.

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Whether you specialize in a lot of small-yardage jobs, or have several assignments scattered over a large project area, you'll save time and money with the high-speed, rubber-tired "D". Makes self-powered moves anywhere on pavement or cross country. 25 miles is only an hour away.

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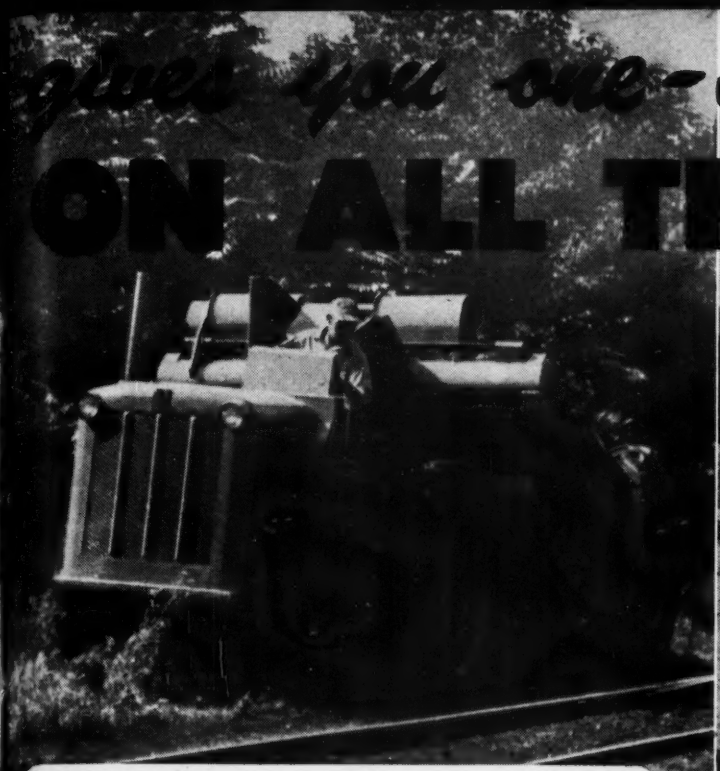
HIGH-SPEED RUBBER-TIRED

TOURNAPULLS

MORE WORK PER HOUR WITH RUBBER-TIRED POWE

gives you one-man dirtmoving ON ALL THESE JOBS



Handles track maintenance

Makes quick repairs along track anytime . . . removes slides; fills washouts; widens embankments; cleans drainage ditches; grades spur tracks, sidings; stockpiles, spreads road ballast. Works off-track . . . crosses tracks at will. A real hustler around shops, yards. Works alone or in fleet operation.

Maintains roads, airports

On any road or airport maintenance, this electric-control, 100 h.p. Tournapull gets more work done. Extends flight strips, landscapes around airports. Handles drainage, shoulder work, surfacing, erosion control, etc. Works, travels over pavement, black-top. Try one . . . you'll find it handy . . . profitable . . . you'll want more.

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You Get:

- 5 speeds forward to 25 m.p.h.
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- Four 14.00 x 32, 12-ply tires
- Weighs approx. 20,700 lbs.

Send coupon TODAY for complete facts.

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To: R. G. LeTOURNEAU, Inc., PEORIA, ILL. Please send information on "D" ROADSTER:

☐ Specifications ☐ Price ☐ Delivery ☐ Would like job analysis on present operations

NAME..... TITLE.....

COMPANY..... TYPE OF BUSINESS.....

STREET..... CITY, STATE.....

Would also like information on ☐ 13.3-yard "C" TOURNAPULL ☐ Big 30-yard "B" TOURNAPULL

Worn Sheaves are on his blacklist

Sheaves, the Bethlehem man will tell you, can be a big factor in the life of wire rope. Whenever he sees a rope that looks "chewed up," one of the first things he investigates is the sheaves. If they're badly worn, he suggests they be replaced or remachined. This is the stitch in time that saves nine—sometimes more.

Soft sheaves are often corrugated by the action of the rope passing over them. The same thing can happen to drums and rollers. These corrugations, or ridges, frequently grow so sharp that they nick and abrade the wires of each new rope installed. When this occurs, and you let it go on, it's just like throwing money away. Keeping a worn sheave – and spoiling a fine rope – is false economy, any way you look at it.

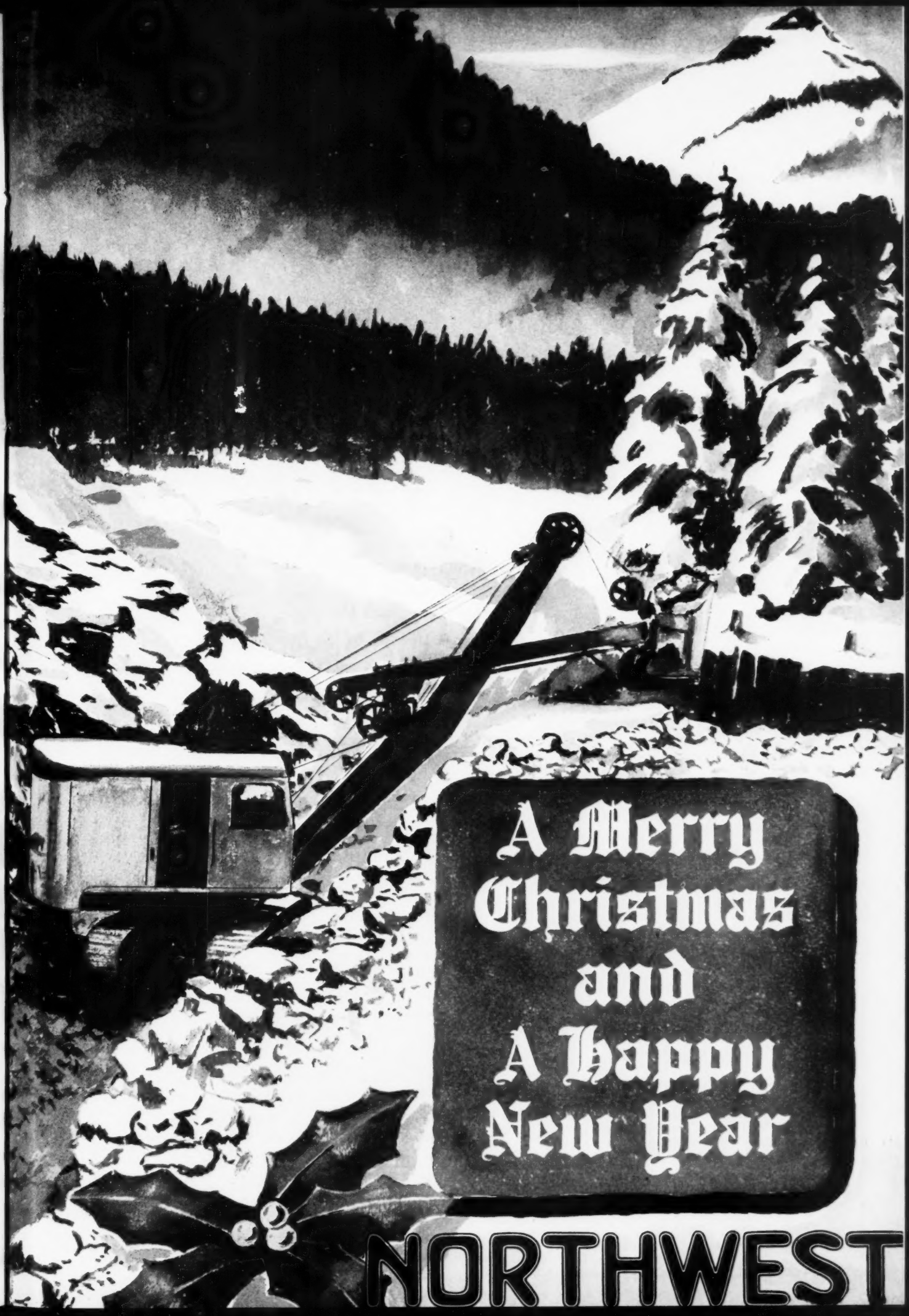
The Bethlehem field man is trained to ferret out such things. That's part of his job. He knows—and he wants *you* to know —how rope life can be prolonged. He'll gladly suggest a few simple precautions—like sheave maintenance – that help turn the trick.

Remember, whenever you need his help in wire-rope matters, it's yours for the asking. No cost, no obligation. Simply call the nearest Bethlehem office or distributor.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

When you think WIRE ROPE . . . think BETHLEHEM


A Merry
Christmas
and
A Happy
New Year
NORTHWEST

Here's *New* Digging Power! with the *New* I-R Size 159

The tops in diggers is the new Ingersoll-Rand 159—the fastest—easiest to handle—lightweight digger you've ever seen.

Here's why:

- **Tops in Power—Power not dependent on nozzle-steel seal.**
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See it in action. Call our nearest branch office to have one of our Service Engineers arrange a convincing demonstration of this spectacular new digger on one of YOUR jobs. The Size 159 Digger is excellent for digging in hard pan, frozen ground, coarse gravel and shale. The sooner you see it in action, the sooner it will be at work for YOU.

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Top quality machines that work as a team and enable the workman to do more work with less effort. Ask one of our representatives to show you how Air Tools pay for themselves nearly twice as fast under today's conditions. Machines designed, built and serviced by men who know contracting.

For *STEPPED-UP* TONNAGE

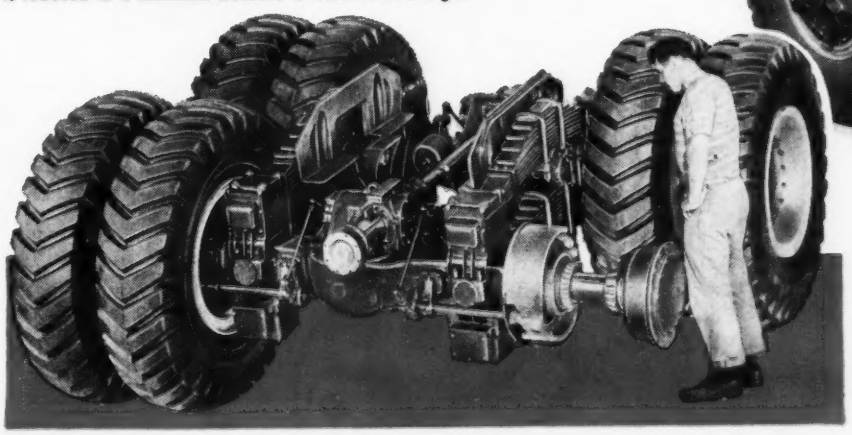
NEW 30-TON MACK

• Mack's new Model LRSW packs a 30-ton payload in its monster dump body — or pulls 55 tons as a tractor semi-trailer.

Big 275 h.p. super-charged Diesel keeps tonnage moving away from the shovels — fast. Massive frame is of alloy steel, reinforced and welded into one piece; built to stand up under the stiffest punishment. Mack's famed Balanced Bogie with exclusive Power Divider assures positive traction over difficult terrain and through slippery mud. Power steering and air-assist clutch mean easy handling, less driver fatigue, better maneuverability, safe and sure control. Roomy, all-steel cab has offset driver's seat for better vision.

No other off-highway truck offers you so many outstanding features and advantages. No other manufacturer but Mack designs and builds so many of its components in its own factories — your assurance of trucks that are perfectly co-ordinated for utmost efficiency.

Let us give you full information in terms of your particular operation. Write or call your nearest Mack branch or dealer.



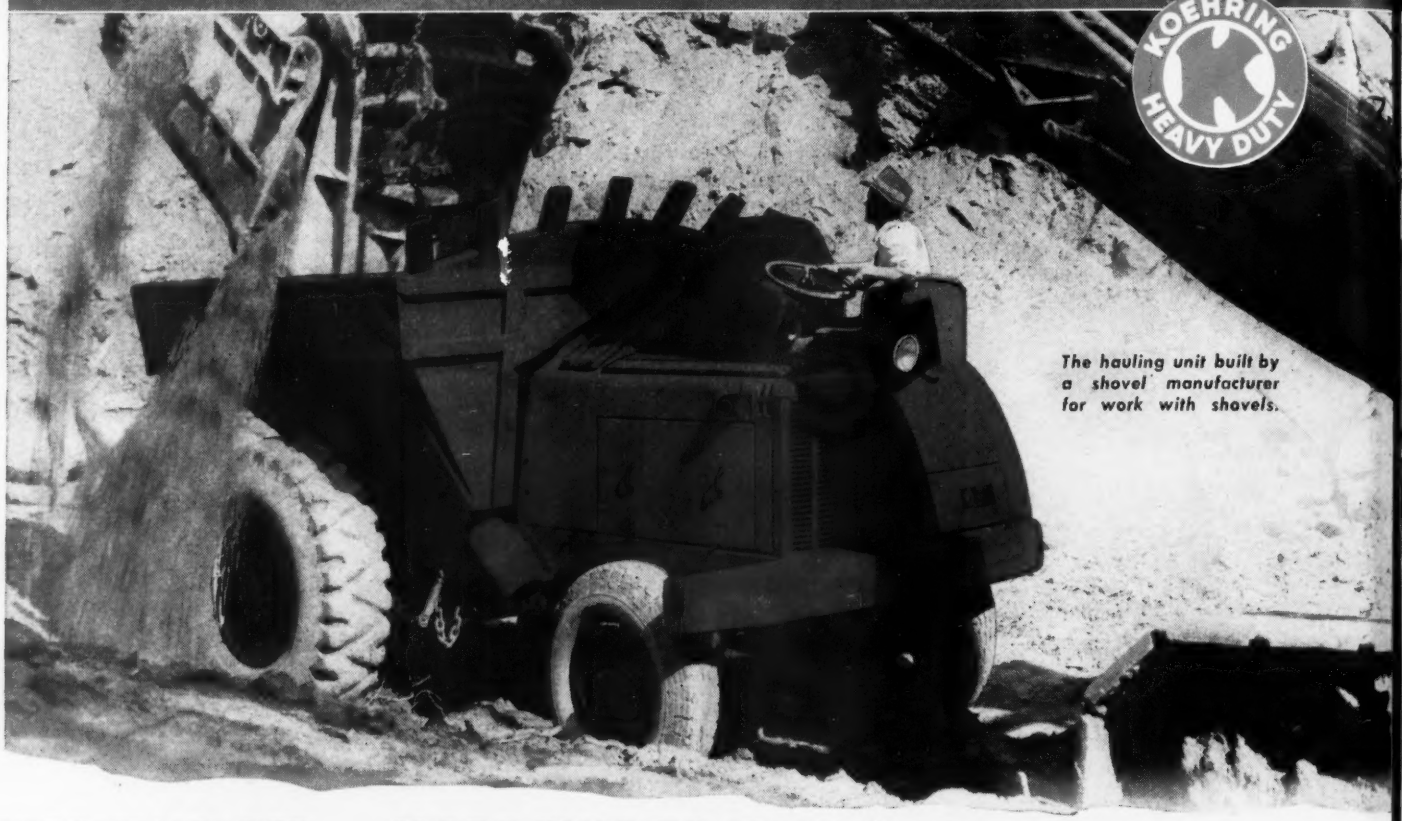
Here's the famous Mack Balanced Bogie with the exclusive Power Divider which brings new standards of performance to off-highway hauling. Unusual flexibility and balance insure even tire loading, uniform braking and equal traction on all four wheels. Maintenance is reduced to a minimum because of functional design.

Mack

TRUCKS FOR EVERY PURPOSE

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa., Plainfield, N. J.; New Brunswick, N. J., Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts. In Canada, Mack Trucks of Canada, Ltd.

7 Reasons WHY DUMPTOR Maintenance Cost Stays Low in Toughest Service



The hauling unit built by a shovel manufacturer for work with shovels.

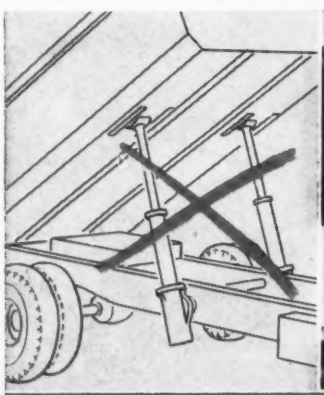
LESS TIME OFF . . . MORE TIME TO HAUL because:

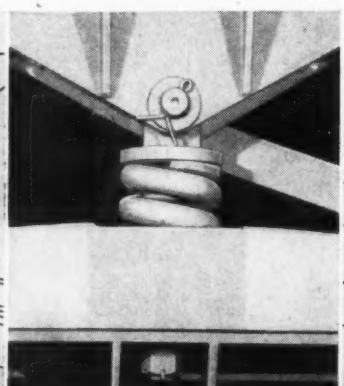
1 No Body Hoist Maintenance. Dumptor has no body hoist. Gravity alone tips 6-yard body in one second in zero weather.

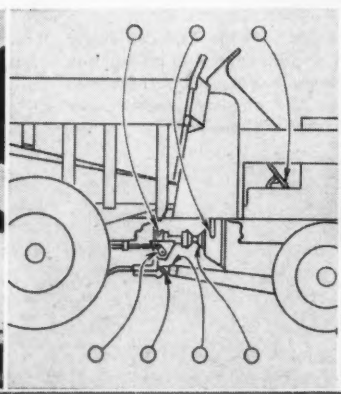
2 One Spring Only, on pivot-mounted front axle. No other springs on either axle. No spring maintenance problem.

3 Lubrication Chart shows just 7 daily lubrication points on Dumptor chassis. Daily lubrication wastes no haul-time.

4 Big 16:00 x 24" single drive wheel tires. Special heavy duty for off-road work. No rock wedging between duals.

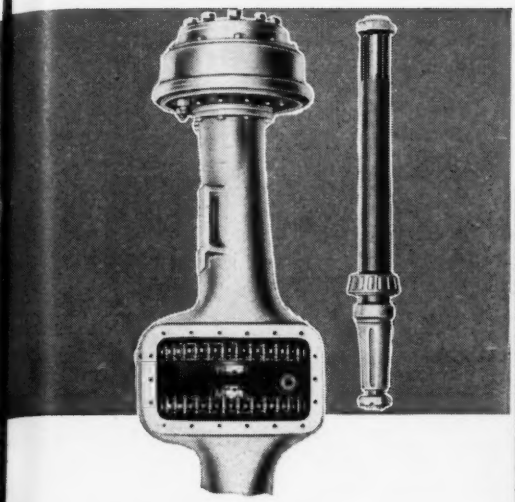




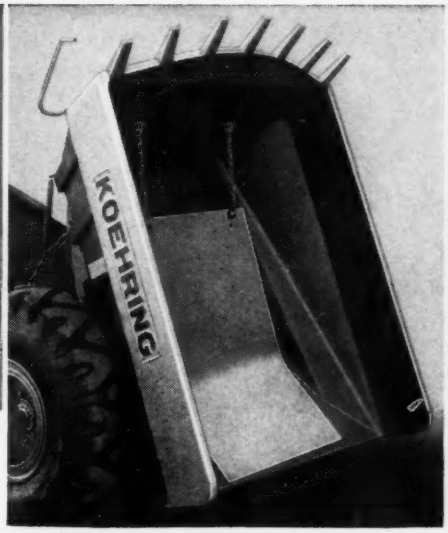


KOEHRING CO. MILWAUKEE 10, WISCONSIN

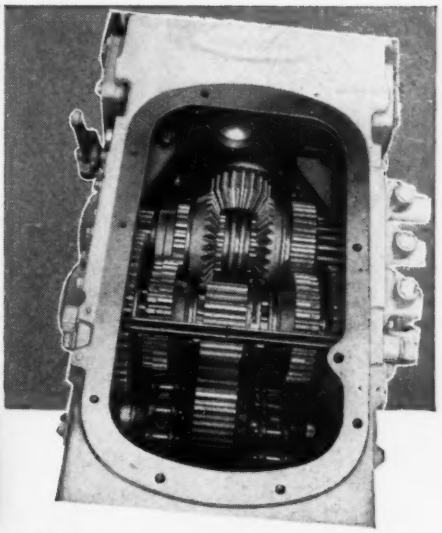
704



5 No Dumptor drive axle has ever been broken in rock. They're chrome nickel steel, 4" in diameter, heavy cast steel case.



6 Kickout pan adds 3/16" steel on top of 3-layer steel-oak-steel bottom. Body sides heavily reinforced with 4" steel channels.



7 Transmission runs in oil . . . lasts longer. Oil changed only once a season. No need for continuous refilling. Case is oil-tight.

New 3½-S End Discharge Mixer Saves Labor

Improved Non-Tilt Model

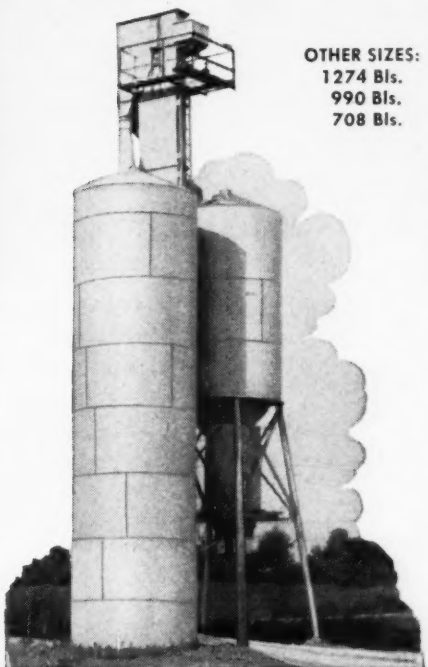
Compare these features found on the new Kwik-Mix non-tilt mixer: Mixing drum powered by multiple V-belt for smoother operation, less maintenance costs; charging side water entry for more uniform mix, less clogging; all levers conveniently grouped on one side; manual hopper shaker that may be used when needed. Write for more facts!

KWIK-MIX COMPANY
PORT WASHINGTON, WISCONSIN

Stores up to 1,550 Barrels Cement Yet Fully Portable

Johnson Twin Silo Bulk Cement Plant

Combines large storage capacity — up to 1,550 barrels of cement for the largest size — with complete portability. All-welded construction simplifies erection.



OTHER SIZES:
1274 Bls.
990 Bls.
708 Bls.

C. S. JOHNSON COMPANY
CHAMPAIGN, ILLINOIS

Shifting Boom Eliminates Costly Handwork

Parsons 250 Trenchliner

Shifting boom permits Parsons 250 Trenchliner to sidestep obstructions — walls, trees, utility poles — that would stop other trenchers. Costly handwork is eliminated. Boom shifts easily from side to side across full width of Trenchliner, because it rides on large diameter rollers.

PARSONS COMPANY
NEWTON, IOWA

More footage Drilled LESS UPKEEP COST

When you protect drills from rust and wear with Texaco Rock Drill Lubricants EP

YOU take rust and wear out of the category of major "headaches" when you protect your drills with *Texaco Rock Drill Lubricants EP*. At the same time, you assure more trouble-free operation (which means more footage per shift) . . . longer drill life . . . lower maintenance costs.

Texaco Rock Drill Lubricants EP have the "extreme pressure" characteristics necessary to protect moving parts against wear under the severest conditions. Furthermore, they resist washoff . . . stay fluid at low temperatures . . . keep parts free of gum and carbon formations . . . and guard against rust whether drills are running or idle.

Texaco Rock Drill Lubricants EP meet the specifications of leading rock drill manufacturers. Use the viscosities recommended for your particular drills and operating conditions.

For greater efficiency in *compressor* operation . . . for free rings, clean valves, clear airlines . . . use the recommended *Texaco Cetus, Alcaid or Algol Oils.*

Let a Texaco Lubrication Engineer help you increase drilling efficiency and economy. Call the nearest of the more than 2300 Texaco Wholesale Distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Tune in . . .
TEXACO STAR THEATRE
presents MILTON BERLE
every Wednesday night.
METROPOLITAN OPERA
broadcasts every
Saturday afternoon.

TEXACO

TEXACO

Lubricants and Fuels

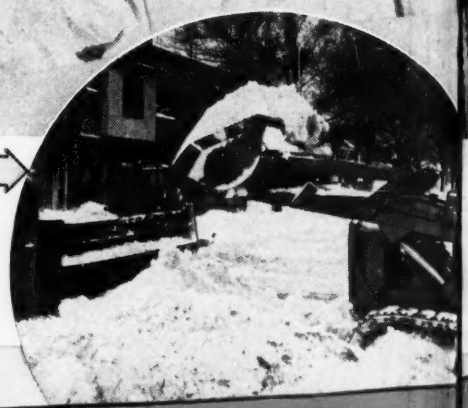
FOR ALL CONTRACTORS' EQUIPMENT

NOW IT'S A SNOWPLOW

Plenty of traction and power combined with greater maneuverability make it the ideal outfit for plowing snow from narrow roads, streets, alleys, parking lots, many other places.

NOW A SNOW LOADER

Quickly picks up and loads snow into trucks from wherever snow has to be removed — industrial plants, cemeteries, airports, institutions, streets, alleys, parking lots, gasoline stations.



For All Types of Jobs

Interchangeable Attachments Make The **ALLIS-CHALMERS HD-5*** and **TRACTO-SHOVEL** *A Versatile, Money-Saving, All Season Producer*

The ATTACHMENTS

- 1 Cu. Yd. Standard Bucket.
- ¾ Cu. Yd. Narrow Bucket.
- 2 Cu. Yd. Snow Loader Bucket.
- 1 Cu. Yd. Rock Bucket.
- Teeth For All Buckets.
- Heavy-duty Bulldozer Blades — narrow and wide.
- V-type Snowplow.

***HD-5 weighs 11,250 lbs. . . . provides 40.26 drawbar hp., 50.25 on belt**

FOR Dirt

NOW IT'S A SHOVEL

Digs basements, loads surplus material into trucks from roads and streets, loads from stockpiles — sand, gravel, crushed rock, etc. . . . for all kinds of excavating and fill work, numerous loading jobs and crane work.

NOW A BULLDOZER

Equipped with a heavy-duty blade, backed by ample traction and power, has the ability to excavate in tough going, backfill, handle all kinds of leveling work.

s the Year 'Round

Here's an outfit that brings you an income throughout the year. No need to put it away in the winter and wait for spring. When the dirt and material handling season ends you simply take off the bucket or bulldozer and quickly attach a snowplow or snow bucket—depending on the job to be done.

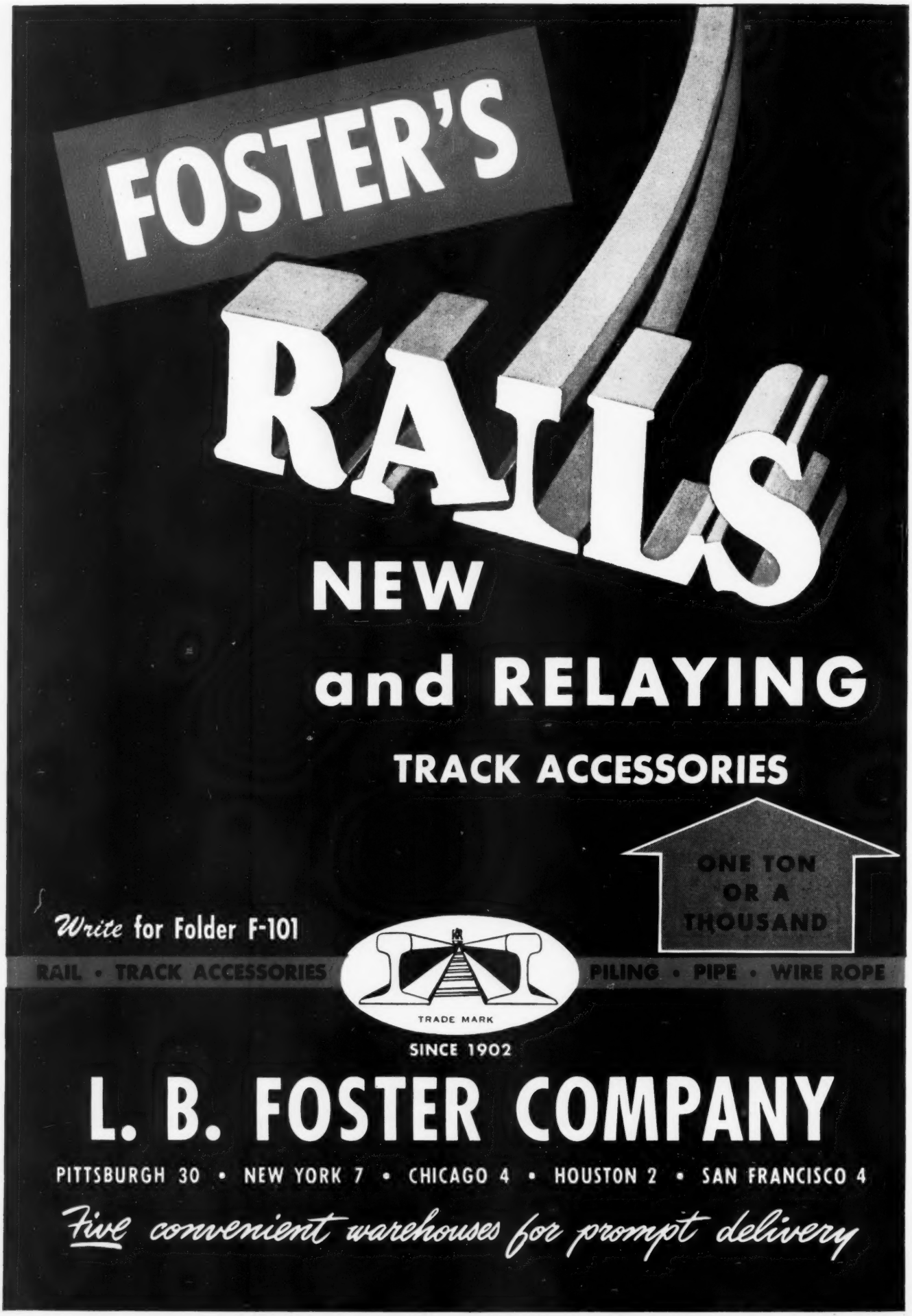
In every community, large or small, and in the country, there are countless snow removal jobs just made to order for this outfit.

Get all the facts from your Allis-Chalmers dealer . . . start earning a year around income NOW!

Not Tied Down To Specialized Duty — Yet Gives Special Performance On Every Job

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.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RAILS
NEW
and RELAYING
TRACK ACCESSORIES
ONE TON OR A THOUSAND
Write for Folder F-101
RAIL • TRACK ACCESSORIES
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SINCE 1902
L. B. FOSTER COMPANY
PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4 • HOUSTON 2 • SAN FRANCISCO 4
Five convenient warehouses for prompt delivery

are you being taken for a buggy ride?

Is the high cost of materials and labor clouding your profit picture . . . endangering your customer relations?

To cost-conscious contractors and engineers, Rex Pumpcrete . . . *the pump that pumps concrete through a pipe line* . . . provides a proved way to substantially reduce costs!

For example! Think of the costs involved in buggying concrete! Figure the savings to be gained when you can eliminate the buggy run and deliver concrete through a pipe line right to the point of replacement.

Then! Figure how much you could cut your bids if you could be assured the fastest, most advantageous form and steel setting sequence . . . if you could achieve a closer coordination between the trades (carpenters, steel setters, concrete crews) and reduce interference with these interlocking activities.

Because Pumpcrete makes these advantages possible through steady pumping instead of the usual occasional pour, you can cut days off your schedule . . . and that means money in your pocket!

Add to these cost-cutting advantages, the fact that Pumpcrete transports concrete through a pipe line on one or more levels . . . elevates or lowers and distributes concrete in ONE operation. Thus, you can eliminate the expense of road building and maintenance . . . trestling and scaffolding . . . towers and many other items of preparatory work that add materially to construction costs.

If you want to avoid being taken for a "buggy ride," talk to your Rex Distributor before you bid. He can show you how you can cut costs . . . improve concrete quality . . . make more money with "concrete by pipe line." If you prefer, write direct for free copies of informative Bulletins on Pumpcrete economy. Address Chain Belt Company, 1664 West Bruce Street, Milwaukee 4, Wis.

REMEMBER, Pumpcrete can now be rented from your Rex Distributor so you can prove the economy of pipe line placement for yourself at low cost!

CONSTRUCTION MACHINERY

Taking a Sewer to Sea

McKiernan-Terry No. 11-B-3 Double-Acting Pile Hammer, operated from a gradually lengthening work trestle, in the construction of the Hyperion submarine outfall sewer at El Segundo, Calif. Guy F. Atkinson Co., contractor.

This project—to deposit sewage in the ocean a mile out from shore—required driving both timber and steel H-beam piles. Past experience told the contractors that they could rely on a heavy-duty McKiernan-Terry Double-Acting Hammer for the necessary power and dependability.

The 11-B-3 Hammer shown here is one of 10 double-acting sizes in the McKiernan-Terry standard line, which includes also 5 sizes of single-acting hammers and 2 double-acting extractors . . . providing always a right choice for any specified driving or pulling requirements. MK-260

WRITE FOR INFORMATION

We'll gladly send you McKiernan-Terry literature giving double-acting and single-acting hammer specifications for your files. Send today.

McKIERNAN-TERRY CORPORATION

Manufacturing Engineers

14 PARK ROW, NEW YORK 7, N. Y.

Other McKiernan-Terry Activities

McKiernan-Terry quality and engineering excellence are also found in coal and ore bridges, bulk material unloaders, marine equipment and other large engineering structures performing important service to industry, railroads and our government.

McKiernan-Terry PILE HAMMERS AND EXTRACTORS

"More than 1,000 yards a day
Week after week...
with one operator"

Barber-Greene

B 47331

545-A Bucket Loader

That's the kind of big-yardage performance you can expect from the B-G Model 545-A Bucket Loader. This pneumatic-tired, heavy-duty 3 cu. yd. per minute machine is built to move high tonnages at low cost. Its two or four-wheel drive, with wheels individually braked, means excellent maneuvering in close quarters, steady crowding into stock piles — and quick withdrawal. Synchronized Spiral Feed keeps buckets full; Automatic Overload Release protects machine. Boom lowers hydraulically to cradle to give low clearance in transport. B-G rugged design and construction mean many years of profitable service. Ask your B-G distributor about these and other B-G Loaders and Conveyors, or write Barber-Greene Company, Aurora, Illinois.

A-621-B

Model 522 Bucket Loader

The B-G Model 522 is a versatile pneumatic-tired Loader for those jobs that don't require the extra capacity of the 545-A. Provided with High Boom and Swivel Spout or Low Boom and Swivel Conveyor.

102

BARBER · GREENE COMPANY, AURORA, ILLINOIS

Constant flow Equipment

LOADERS PERMANENT CONVEYORS PORTABLE CONVEYORS COAL MACHINES BITUMINOUS PLANTS FINISHERS DITCHERS

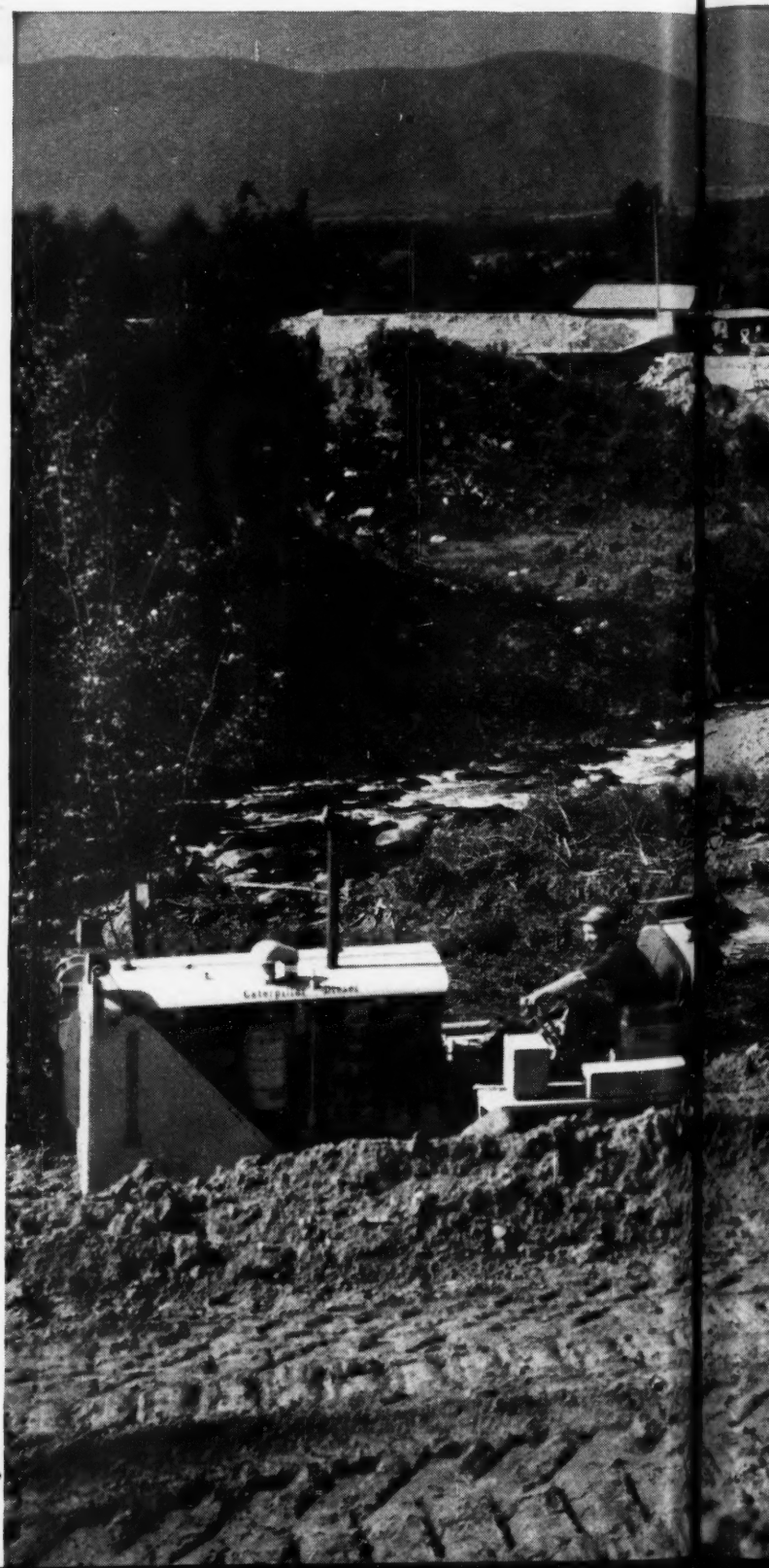
Turning Hardpan

Almost any equipment will get by when the going is easy. Making money on the tough jobs is something else again. That's when a contractor needs "Caterpillar" Diesels.

Waggaman & Collyer, Glens Falls, N. Y., are using a total of 15 "Caterpillar" Diesel D8 and D7 Tractors on their 250,000-yard excavation job for the new Saranac River hydro-electric dam. The material they're moving is heavy hardpan, full of rocks and boulders. As experienced contractors they were already well acquainted with the power and tough dependability of "Caterpillar" Diesel Tractors, and enthusiastic over "Caterpillar" Bulldozers. But the fine performance of the matched "Caterpillar" No. 80 and No. 70 Scrapers has really opened their eyes. Says Superintendent Al Greenwood:

"'Caterpillar' Scrapers are the best units on the job. They'll load hardpan that the others will hardly touch. It's the shape of the cutting edge that does it. And as for those 'Caterpillar' cable controls—they're sweethearts!"

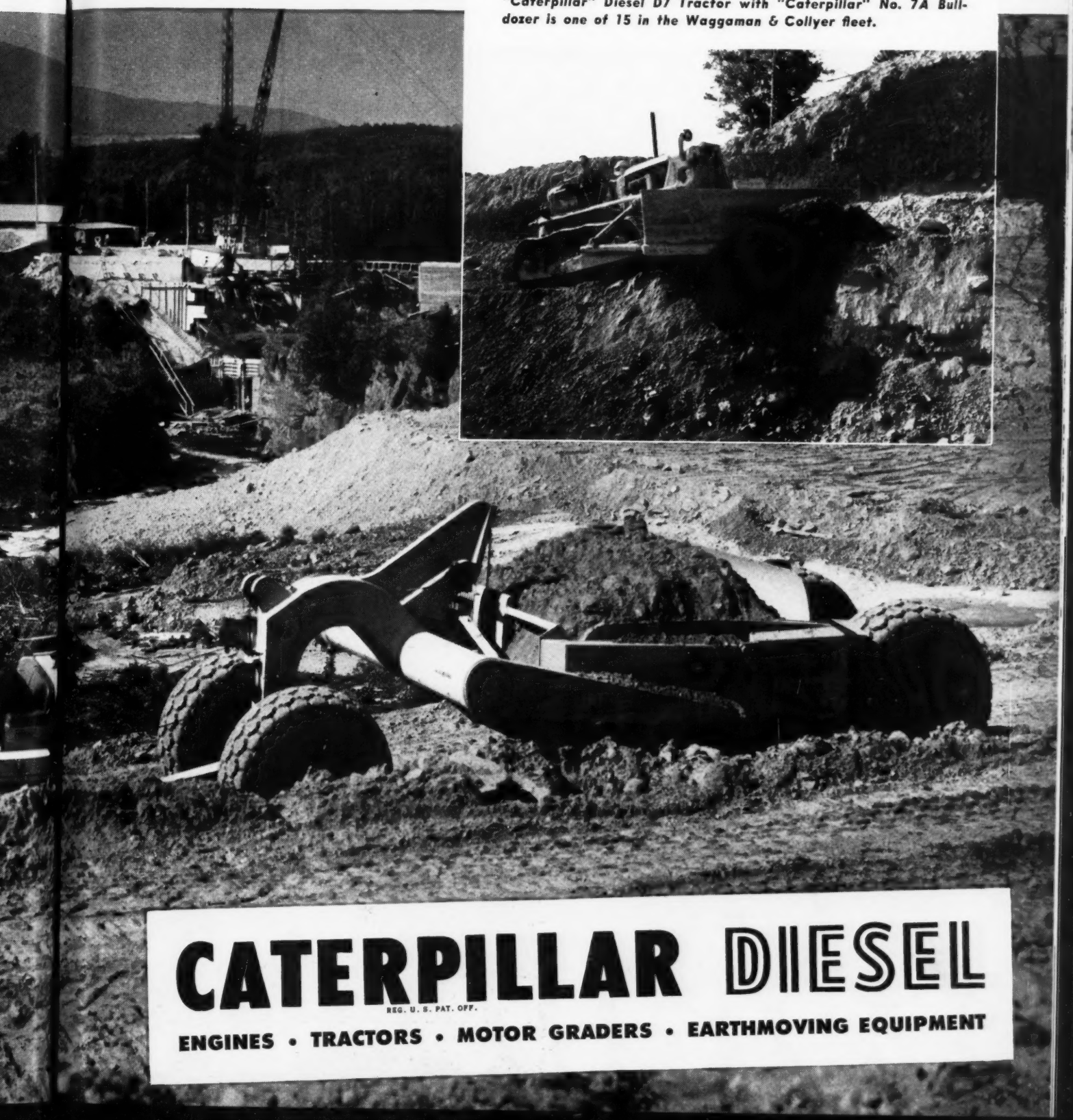
CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS



A "Caterpillar" Diesel D8 Tractor with matched "Caterpillar" No. 80 Scraper moves earth to clear a channel to the tunnel on the Saranac River dam project.

n Into Hard Cash

Hardpan like this means hard going for 'dozers and scrapers. The "Caterpillar" Diesel D7 Tractor with "Caterpillar" No. 7A Bull-dozer is one of 15 in the Waggaman & Collyer fleet.



CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

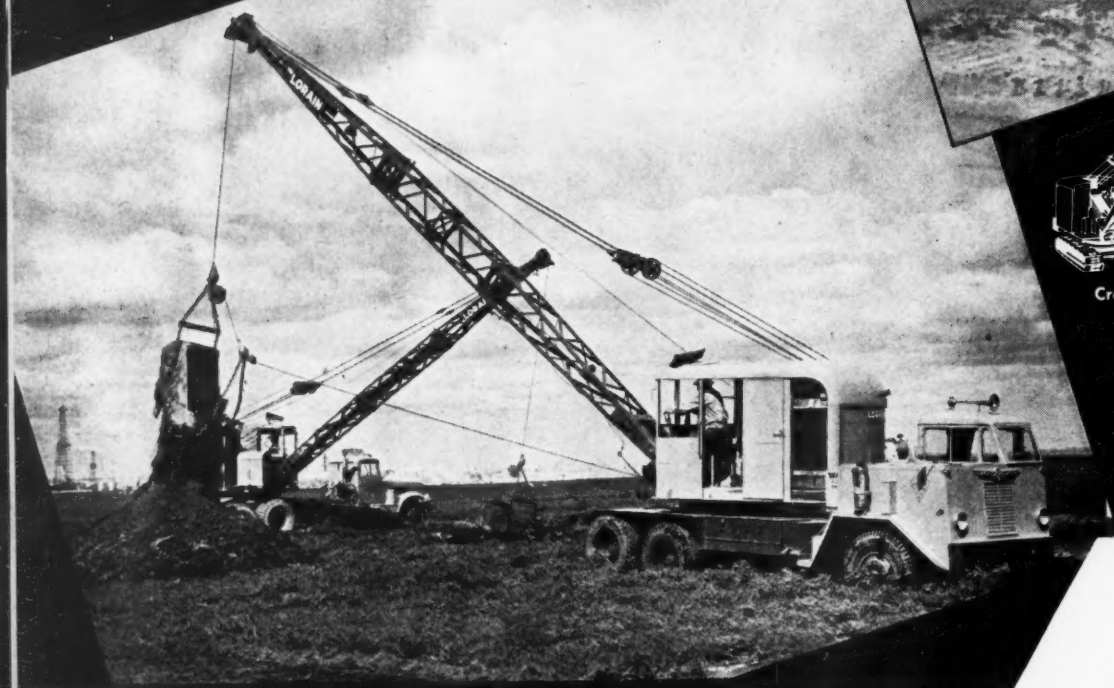
ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

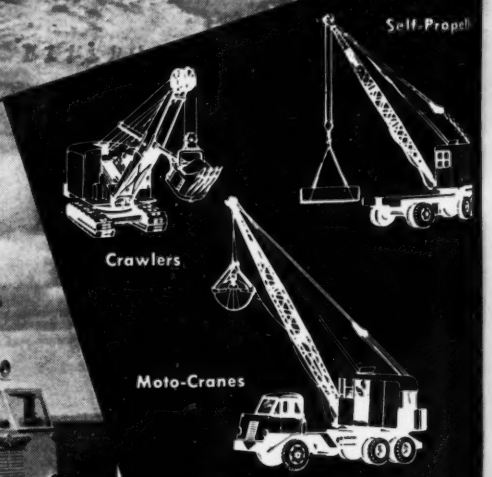
Operation "Action"...
with LORAIN-41 SERIES on the job!

• If you're looking for a "powerhouse" of action on construction jobs, then inspect the complete line of the Lorain-41 Series. For these machines are built to "take it" and come back for more . . . All the turntable stress-producing elements—Machinery Frame, Operating Shafts, Struts, Front Rollers, Boom Connections, etc.—are mounted on a double annealed, alloy steel, one-piece Bed Casting with the strength of a battleship.

And you have your choice of mountings . . . 2-speed crawler or three types of rubber-tire carriers, and all models are available with interchangeable boom equipment for shovel, crane, clamshell, dragline and hoe operation. Check with your Thew-Lorain distributor—today—for more money-making facts on this and other versatile machines in the complete Lorain line.

THE THEW SHOVEL COMPANY • Lorain, Ohio
Cable Address: UNLOADER





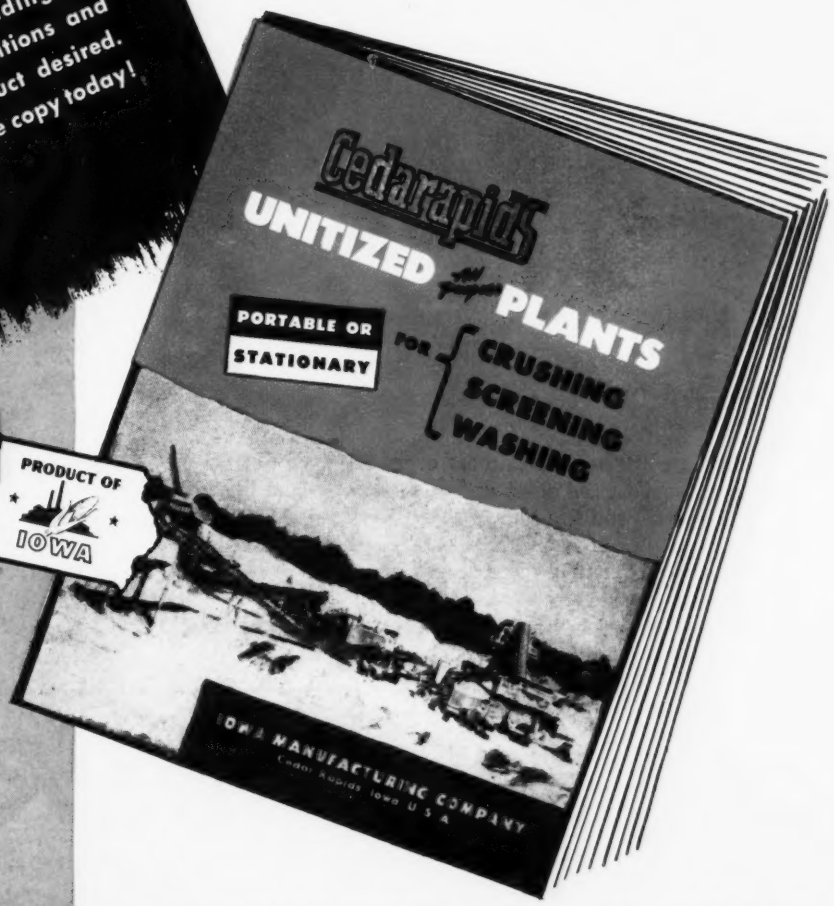
Thew
Lorain® 41 SERIES

How to cut AGGREGATE PRODUCTION COSTS...

A few thousand yards . . . or several hundred thousand? Whatever your production requirements, you can produce aggregate *more profitably* with Cedarapids Unitized Plants. Crushing, sizing, washing done in one smooth, balanced operation that means higher output at lower costs per ton. Six different sizes of finished products in one operation! Capacities from 25 to 250 tons per hour! Instantly adaptable to special job conditions from rip rap to agstone, any quantity, any specifications . . . time and labor saving flexibility . . . fast, easy set-up and takedowns . . . low operating costs, minimum maintenance and repairs . . . THAT'S CEDARAPIDS flexibility, mobility and volume production combined in one all-purpose, cost-reducing package.

Keep the good contracts coming in. Finish them on time . . . at a profit. When buying a crushing plant . . . buy the best . . . buy Cedarapids.

This 20 page bulletin will show you a dozen ways to cut the cost of producing crushed stone, crushed gravel, roadstone, washed gravel or stone, and agricultural limestone. It gives detailed descriptions and specifications on the four basic units that make up Unitized Plants, describes how each portable unit, complete in itself, can be used in any combination depending on pit or quarry conditions and the finished product desired. Send for your free copy today!



Cedarapids

Built by IOWA

PRODUCT OF IOWA

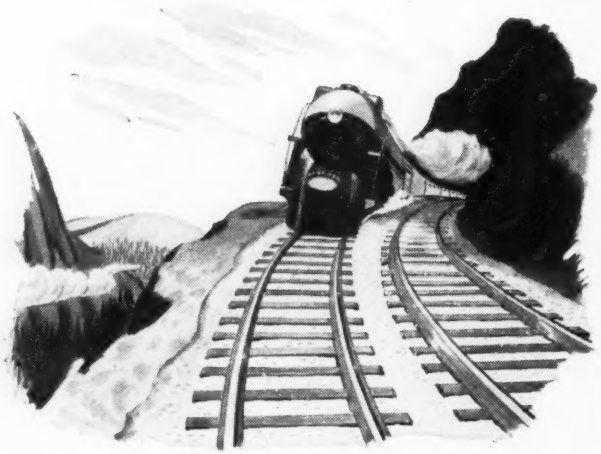
The IOWA LINE
of Material Handling Equipment Includes:

ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS – STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • STRAIGHT LINE ROCK AND GRAVEL PLANTS • FEEDERS – TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE PLANTS • PORTABLE GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE ASPHALT PLANTS • HAMMERMILLS • DRAG SCRAPPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS • STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS

See Your Cedarapids Distributor For Full Details

IOWA MANUFACTURING COMPANY
CEDAR RAPIDS, IOWA, U.S.A.

Let Morse grease the rails for your tough jobs too!

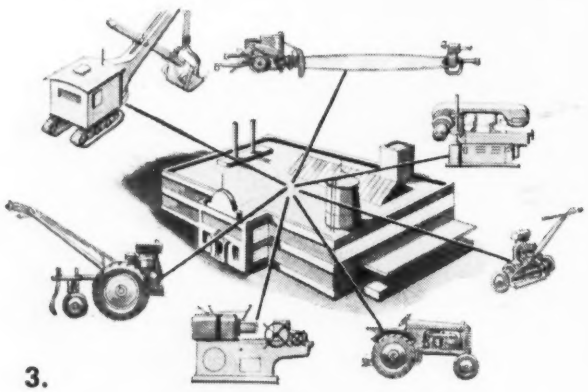


1.

Sc-r-r-ee-ch! Railroad men know this noise means that expensive train wheels and rails are wearing away on curves. To prevent this wear, automatic greasers were installed to lubricate wheels and rails. Old-style ratchet type clutches were tried, but slipped or didn't feed grease right. American Brake Shoe Company's Ramapo Ajax Division solved this knotty problem . . .

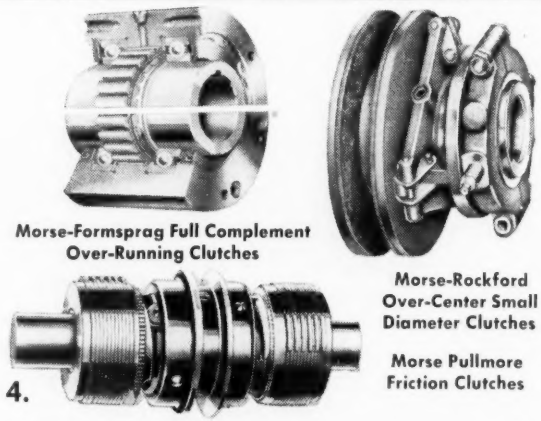
2.

They now use Morse-Formsprag Clutches. The positive action of Morse-Formsprag Clutches is far superior in performance, dependability and service over the old ratchet type. *M-F Clutches engage instantly; allow no back-slip; feed grease to every passing wheel.* Other complex operations on your products may call for Morse-Rockford Friction Clutches . . .



3.

Morse clutches fill almost every need you can imagine. Can the sales and mechanical value of your own products be enhanced by using Morse clutches? Leading manufacturers of such items as construction equipment, cultivators, saws, pumps, lawn mowers and machine tools have bettered *their* products with Morse clutches. How about you? Do this now . . .



Morse-Formsprag Full Complement Over-Running Clutches

Morse-Rockford Over-Center Small Diameter Clutches

Morse Pullmore Friction Clutches

4.

Write for expert clutch engineering aid and consultation. For new ideas, send for clutch catalogs: Morse Formsprag Clutch Catalog, No. C11-48; Morse Pullmore Clutch Catalog, C31-47; Morse-Rockford Clutch Catalog, SDOC. Address: Morse Chain Company, Department 251, 7601 Central Avenue, Detroit 8, Michigan.

Morflex Couplings

Roller Chain Couplings

Silent Chain Drives

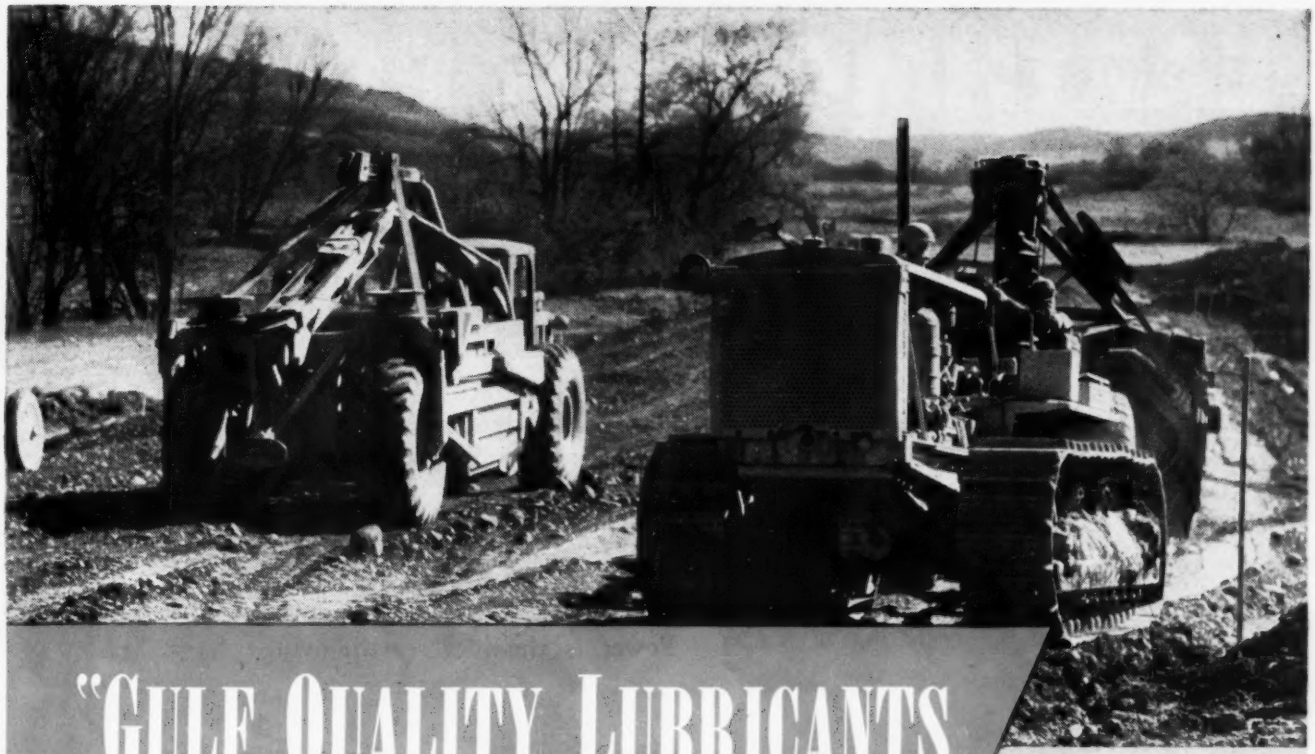
MORSE

MECHANICAL POWER TRANSMISSION PRODUCTS

A PRODUCT OF B-W BORG-WARNER

Morflex Radial Couplings

MORSE CHAIN COMPANY • DETROIT 8, MICHIGAN



"GULF QUALITY LUBRICANTS

smooth the way to greater yardage"

says this Contractor*

* Bero Engineering & Construction Co., Buffalo, N. Y., is rebuilding New York State Highway #8 between South New Berlin and New Berlin, Chenango and Otsego Counties, N. Y.

"Gulf quality lubricants have helped us get outstanding service from our equipment over a period of years," says this prominent New York Contractor. "On every job, we get the kind of lubrication that means smooth operation and freedom from serious mechanical delays—which add up to greater yardage and lower maintenance costs."

Bero Engineering & Construction Co. is one of scores of leading contractors who have found that Gulf quality lubricants provide an extra margin of protection to equipment, particularly when it is pushed hard to beat contract schedules. And Gulf makes available a corps of trained lubrication engineers to assure the most suitable lubricants for every unit and operating condition.

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices:

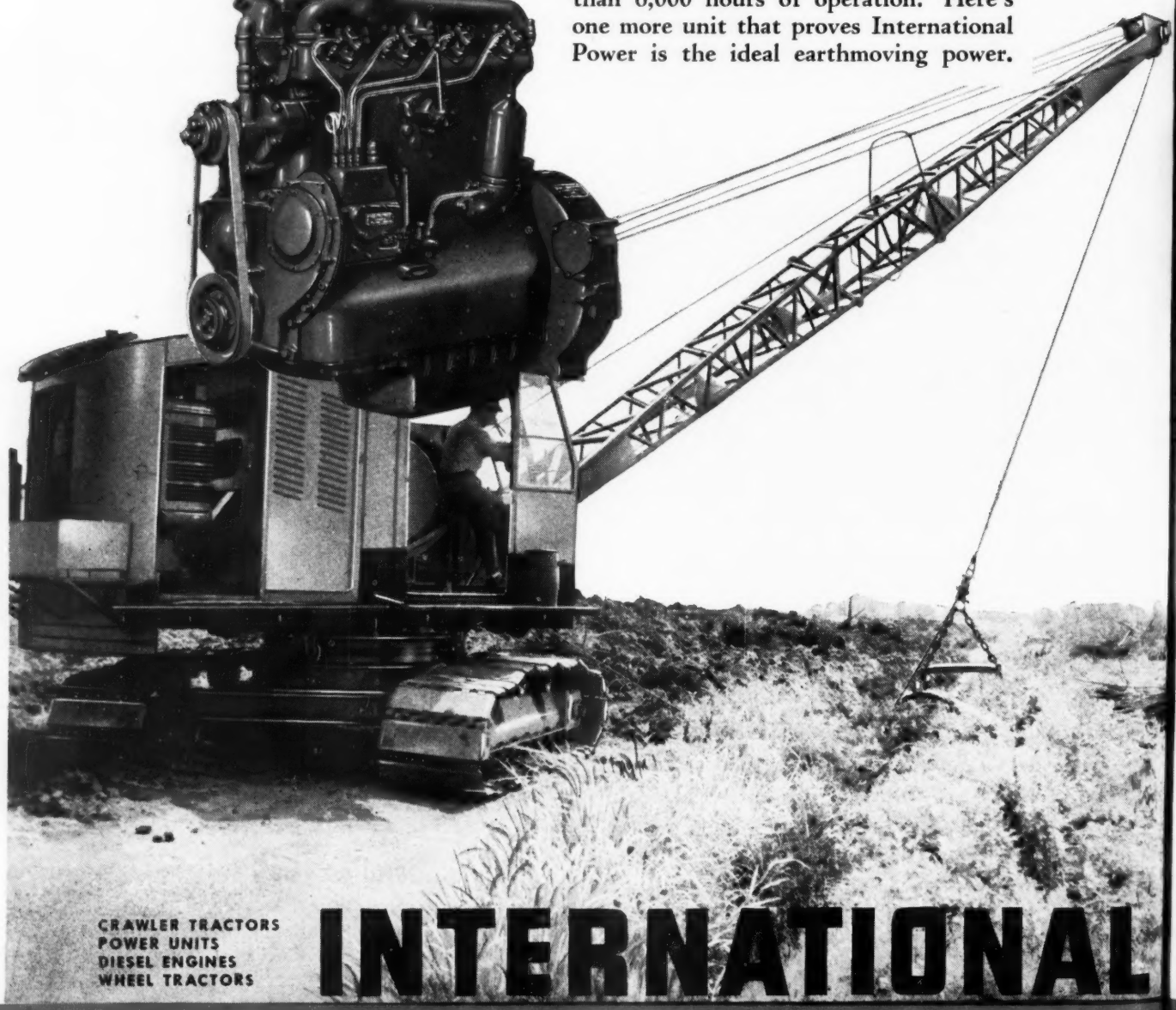
Boston · New York · Philadelphia · Pittsburgh · Atlanta
New Orleans · Houston · Louisville · Toledo

GULF

EARTHMOVING POWER— *by* INTERNATIONAL

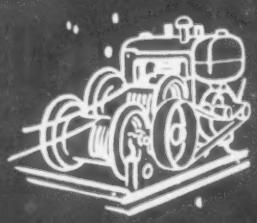
The International UD-14A Diesel delivers 76 working horsepower. You'll find it powering generators, rock-crushers, hoists and dozens of other industrial applications.

Averaging 70 yards of earth an hour, this dragline with its 45-foot boom and one-yard bucket gets its power from an International UD-14A Diesel. It's economical, dependable power, too. No repairs have been needed for the engine in more than 6,000 hours of operation. Here's one more unit that proves International Power is the ideal earthmoving power.



CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL



The International UD-9 Diesel engine produces 53 working horsepower. You'll find UD-9 Diesels in cranes, compressors and many other types of construction and industrial equipment. International engines are the mark of quality in powered equipment.

A payloader, with one-yard bucket, driven by an International UD-9 Power Unit, does dozens of jobs in its daily diet of work. This versatile tool is built to handle earth, loose materials, rock and similar commodities either in industrial set-ups or on contractors' spreads.

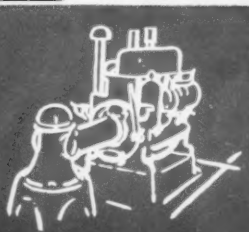
Listen to "Harvest of Stars" featuring James Melton every Wednesday evening—CBS.

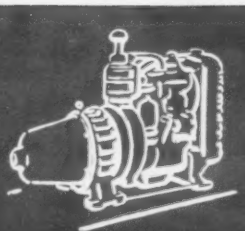
Whatever your earthmoving power requirement may be, insist on equipment powered by International engines. They are your guarantee of durable, cost-cutting horsepower. See your International Industrial Power Distributor about International-powered earthmoving equipment. You'll find International engines pay big dividends in freedom from down time, and in work done. It's wise to remember—wherever you need an engine—you need an International.

INTERNATIONAL HARVESTER COMPANY, CHICAGO

INTERNATIONAL HARVESTER

Industrial Power





NOW MORE THAN EVER YOU NEED "QUICK-WAYS"*

FOR PROFIT

EIGHT MACHINES IN ONE: Shovel, Crane, Dragline, Clamshell, Scoop, Pile Driver, Trench-Hoe or Back-Filler—convertible in minutes.

FAST PORTABILITY: You can move a *"QUICK-WAY"* at truck speed anywhere a truck will go.

FAST OPERATION: Accurate balance and low-slung stability with all-steel light-weight construction make for fast hoist and swing action.

INTERCHANGEABLE PARTS — SIMPLICITY: Minimum of parts, many interchangeable, all easy to reach. Low first cost, low maintenance.

Ask your *"QUICK-WAY"* Distributor for the down-to-earth facts—or talk to any *"QUICK-WAY"* owner; there's one near you.

No matter what larger equipment you own, you need *"QUICK-WAYS"* too.

Write for an S-S* Certificate — FREE

You are entitled to a *Sidewalk Superintendents' Certificate, suitable for framing, and a pocket identification card, both free of charge. Write to *"QUICK-WAY"* Truck Shovel Co., Box 1800, Denver, Colo.

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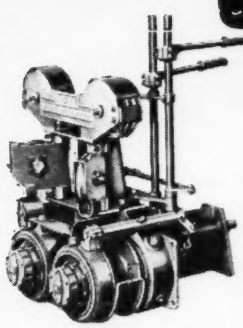
Tough and Ready

... Heil Cabledozers smooth out the rocky road to profits—thanks to their durability and easy handling



Heil Cable Power Control units provide quick moldboard action with little or no effort on the part of the operator.

One way to make more money on a job is to keep maintenance costs down. That's where Heil Cabledozers shine — they're built to take it. Down-time is greatly reduced. Here are a few features that keep Heil dozers ready to work for you:

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Balance—proper distribution of loads and stresses keeps your tractor on the job longer.

Dependable power control unit — drums run cool. Properly designed sheaves and the elimination of shocks and jerks reduce cable wear.

Reversible cutting edges — these special wear-resistant steel blades stay busy longer.

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Become a Heil Cabledozer user and watch your profits grow. Let your International Industrial Power Distributor show you why. Write us for latest bulletins and specifications.

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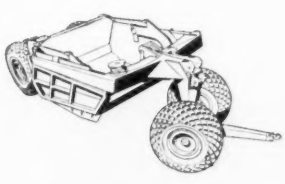
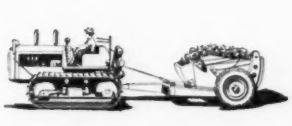


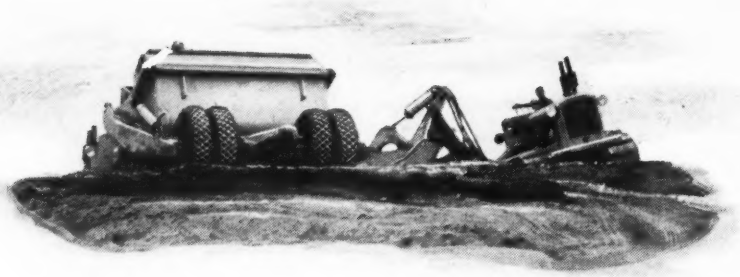
R-94 OC Type (open-top) Scraper

Heiliner-Scraper



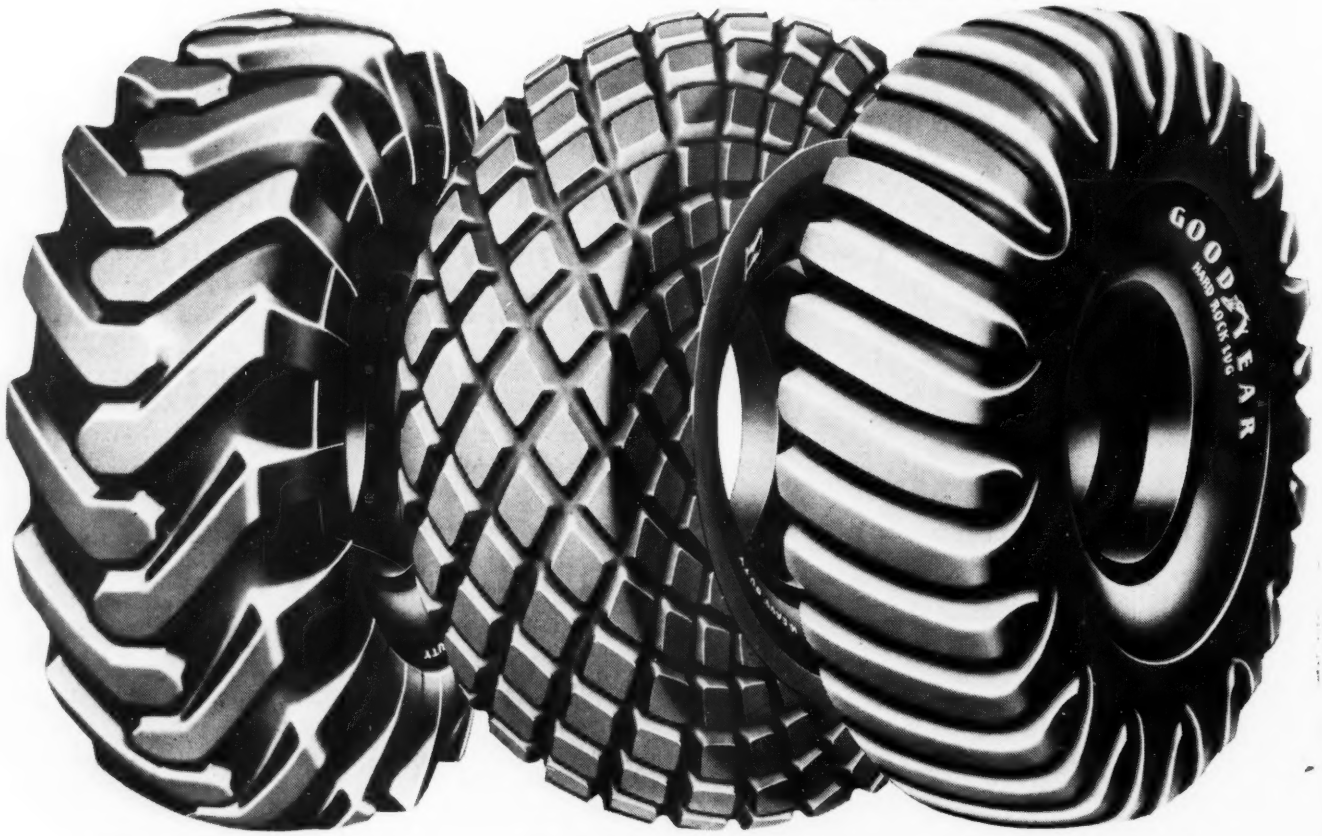
3½ yd. Rear Dump Scraper

Hydraulic Trailbuilder



First Choice
with construction men!

HERE'S why Goodyear tires are favorites on off-the-road jobs. They're *right* in body — *right* in tread — do more work — take more punishment — move more yardage faster at lower cost.



EARTH MOVER SURE-GRIP
for maximum traction on drive wheels

EARTH MOVER ALL-WEATHER
for drawn vehicles and general traction

HARD ROCK LUG
for super stamina in all rock work

PROOF?— More yards are moved on Goodyear Off-the-Road Tires than on any other kind

GOODYEAR

Sure-Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company

Construction Methods

Volume 30 DECEMBER, 1948 Number 12

CUTS AND FILLS

CONTRACTORS, for the most part, are conscientiously trying to keep construction costs down. Unfortunately, they are often helpless because of silly design details that add nothing to the structure, unnecessarily rigid specification requirements and overzealous inspection.

LET'S BE REALISTIC about construction, especially in these days of extremely high prices. We are not for one minute advocating any lessening of standards in construction, nor do we wish to see utilitarianism carried to the point of ugliness. Yet we do plead for designers and specification writers to use plain common sense, to eliminate design frills and specs that add nothing but cost to the project.

WE ASK THEM to become acquainted with modern cost-cutting construction technique whose application is so often thwarted by the design and specs. We ask that they realize form costs are the biggest share of concrete costs, therefore designs that simplify form building and permit repetitive use of forms result in lower-cost construction. We ask that they forget senseless sandpapering of fills and cut slopes, and useless (often destructive) hand rubbing of concrete.

WE ASK that both engineers and contractors realize and share the responsibility of turning out good, sound and attractive projects at the lowest possible cost to the owner and the public who pays for them.

OVER-ENTHUSIASTIC inspection can be even more costly than frilly design. Again, we are not advocating laxity in inspection, but merely the application of common sense. The tough inspector, whether he reflects his own ideas or those of his management, isn't doing nearly as much harm to the contractor as he is to the owner. Contractors know the awarding agencies and certain resident engineers and inspectors as regards their inspection and bid accordingly. The public and owner pay in the long run.

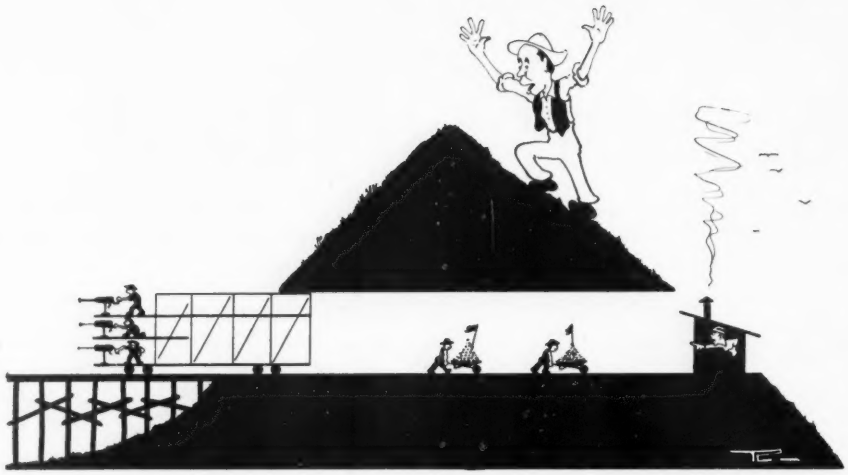
WE KNOW of jobs where reinforcing must be set with a transit, where special toggles must be rigged up on forms to line them up "to the satisfaction of the engineer," where concrete must be rubbed until all the protective surface is destroyed, where pavement must be finished to tissue paper tolerances, and where earthwork must be finished to mirror smoothness in time for the next gully-washing rain, and where the be-jabbers is beat out of piles that curl up and stare you in the face.

IT ALL ADDS UP to no sense, no better structures and a lot of extra costs.

FOLKS, MEET SPIKE. At the bottom of this page our new staff member, Spike Hennessey, takes a bow just in time to send Christmas greetings to you all. Spike will parade through our pages from now on, giving advice to construction workers and management, raising Hell about safety on the job, helping you out of tough situations. In fact, Spike will probably develop into that super construction man you've all been looking for. Don't hesitate to call on Spike, for we hired him to help you. Of course, Spike Hennessey is a fictitious character, the brain child of cartoonist Ed Randall, and any resemblance to any person living or dead is purely coincidental.

CONTRACTOR COMBINATIONS are a good thing. They have made construction of huge projects possible, they performed miracles in war construction. Yet they have lately come under suspicion by the Corps of Engineers and the Bureau of Reclamation, awarders of the big jobs. All too often, these agencies claim, the combination idea is carried down the line to projects so small they should be handled by any one of the combining firms. We know of cases where the interest is as low as 2 percent for some companies. Both cases get into the ridiculous stage. Let's keep the combination idea under control before it is banned, rightly or not.

Spike sez: Howdy Folks, and a Merry Christmas!



Tunneling Through No Ground

MANY A TUNNELING TALE has been told of driving through hard ground, driving through soft ground, wet ground, dry ground, sand and silt. But here is a story of driving a tunnel part way through no ground at all, and in this case no ground proved to be most difficult stuff to drive through.

Lough Tunnel is a 1,525-ft. single-track bore on a new Baltimore & Ohio R.R. coal branch line near Clarksburg, W. Va. When Bates & Rogers Construction Corp., Chicago, got the contract for the tunnel, both they and the B&O engineers knew that old mine workings, abandoned 50 years ago, would be encountered. But no one really had an idea as to the extent or the sorry and dangerous condition of the old workings.

Caverns of various sizes and shapes were run into, mostly above tunnel springline, many filled with water. Walls and roofs had fallen in, filling the bottoms with a slimy unholy mess known locally as gob. This debris had to be carefully removed along the tunnel route, and walls and ceilings cribbed and shored to prevent further rockfalls during driving operations. Small openings were eventually backfilled, but through the larger workings the tunnel lining was thickened for increased stability and the caverns were left open. For 80 ft. through a particularly bad stretch the cavernous ground was so dangerous that workmen couldn't get outside the steel supports to shore up the old workings. Here advance was slowed down to 2 ft. per day while the face was advanced inch by inch.

Excavated dimensions of the tunnel are 22 ft. 8 in. wide and 32 ft. high to crown. In cooperation with the contractor, Commercial Shearing & Stamping Co., Youngstown, Ohio, designed and furnished a beautiful steel liner system. Ribs were two-piece sets of 8-in. 34.3-lb. I-beams, bolted at the crown. All ribs rested on con-

AFTER DRIVING through no ground at all in abandoned mine workings on B&O R.R. Lough Tunnel (below), crew goes back to shore up high roof with cribbing placed on tunnel steel.

IN BAD GROUND (below) lower end of rib posts are lagged, then backfilled as fast as steel is set to prevent posts kicking in at bottom in case of rockfall or slide. Arch lagging is liner plate on 4-ft. steel spacing (right), with water-bar lagging on 2-ft. spacing at left.

tinuous mudsills of two 10-in. I-beams in standard 8-ft. lengths. Ribs were fastened to mudsills through a ¾-in. footplate welded to bottom of post and held to top face of sill by toggle bolts.

Steel liner sets were designed for either 2- or 4-ft. spacing, and the former predominated because of the general bad character of ground. Ribs were braced and spaced by either tierods and timber struts or I-beam spreaders bolted to rib webs. Timber lagging was placed against outside rib flanges on the sidewalls where necessary. On the arch, pressed steel liner plates were built up as lagging for the 4-ft. rib spacing, while C.S.&S. water bar lagging was draped outside the ribs on 2-ft. spacing. This lagging is made up in vertical ribbed sheets that clamp to the spreaders, designed to divert roof water to the sides for drainage as well as to serve as ground support.

Where possible, driving was full face from a drill carriage mounting 14 I-R drifters drilling 70 holes for a 10-ft. round. Detachable Jackbits were sharpened on the job by grinding. A Conway mucker loaded out into 5-yd. cars that were switched by a cherry picker on the rear of the jumbo. Rib steel was erected with a short-boom jinnywink on top of the jumbo.

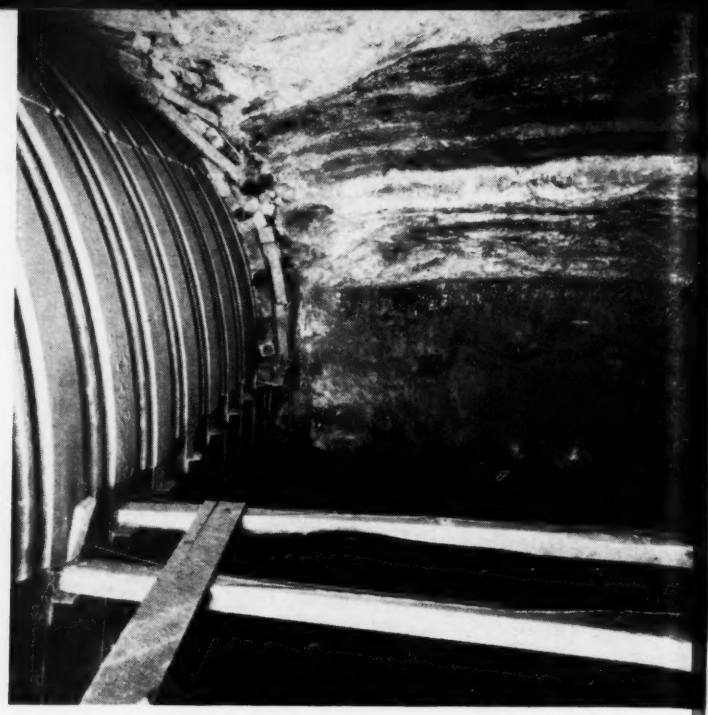
In bad ground and mined-out sections no standard procedure could be followed. In all cases, however, just as soon as the ribs were set in place the posts were lagged and the lower sidewalls were packed and backfilled as quickly as possible. This prevented the posts kicking in at the bottom

TOO GOOD TO LAST was comparatively good driving indicated by 4-ft. steel spacing in foreground, for 2-ft. spaced ribs already surround drill carriage. Jumbo mounts 14 drifters, and sports a cherry picker and a steel-erection jinnywink on its rear end. Note nice design of two-piece steel timbering sets.

ALL RIBS (below) set on double I-beam mudsills. When ground is real bad, sills are set ahead in drifts, sometimes cut down from 8-ft. standard length to 4 ft. Sills assure perfect alignment and support of ribs regardless of soft spots along wall footings.

NOTHING LIKE MEETING an old railroad in middle of your heading. The way this old mine track (below) is buried in debris and rockfalls indicates how tough going can get on some tunnel jobs.

JUST TO MAKE SURE old abandoned workings wouldn't produce more slides and rockfalls, crews worked ahead and to side of tunnel face shoring up old drifts. Tunnel line is behind timbers at left.



WATER BAR LAGGING over arch timbering makes effective shield as tunnel emerges into an old room. Junction of tunnel and room is well back-packed, as can be noted in background. Clip angles welded to outside of ribs at springline form seats for bracing timber.

if there is a slide or a rockfall.

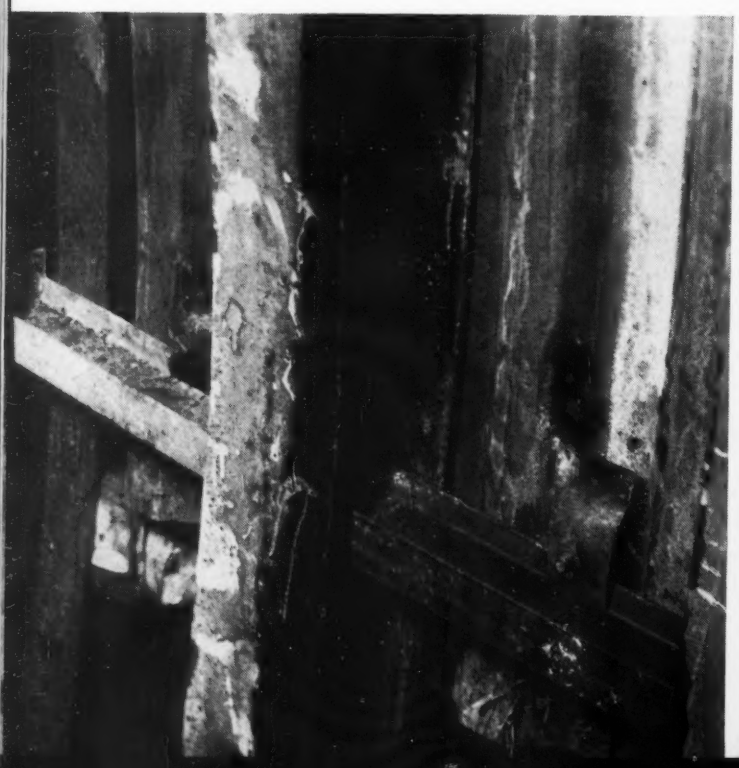
The mudsills, of course, had to be placed ahead of the ribs. Where the steel had to be carried right up to the face, it was usually possible to drift ahead for the sills, but in some cases the 8-ft. sills had to be cut down to 4 ft. In a particularly bad section, the bench was removed first to permit placing of 4-ft. mudsills and heading removed very cautiously to permit subsequent erection of steel ribs.

Procedure in driving through the old mine workings varied by the foot. Extreme caution was necessary at all times. Whenever possible a gang worked ahead of the tunnel face, cleaning out, shoring and cribbing the old rooms.

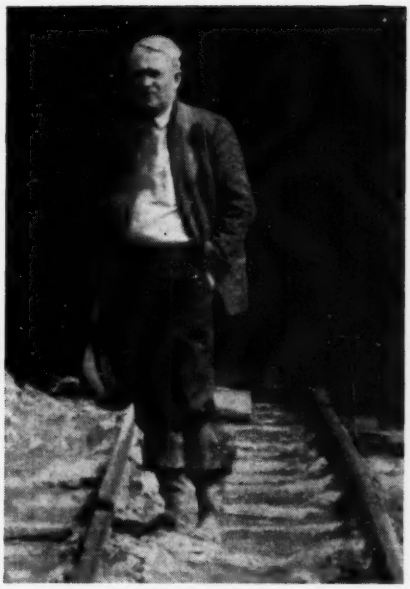
When a dangerous high roof was met on tunnel line, often the lower part of the tunnel was driven under the protection of steel kept close to the bench face. Then, proceeding cautiously, workmen would crib up the roof from top of arch steel. At all times the object was to prevent rockfalls, slides and ground movement for a safe distance back of the tunnel line. The excellent set of pictures, furnished by the B&O R.R., show these difficut detail operations better than words can describe them.

Concrete lining was placed with

CLIPS HOLD water bar lagging (below) tight against ribs and spreader beams.



JUST AN INDICATION of timbering and shoring necessary to hold sides and roof of some of bigger mine workings. Note wedged cribbing (below) at upper right supporting bad roof.



LAST PICTURE of great tunnel man on his last job. JIM STRONG snapped at west portal few weeks before his death.

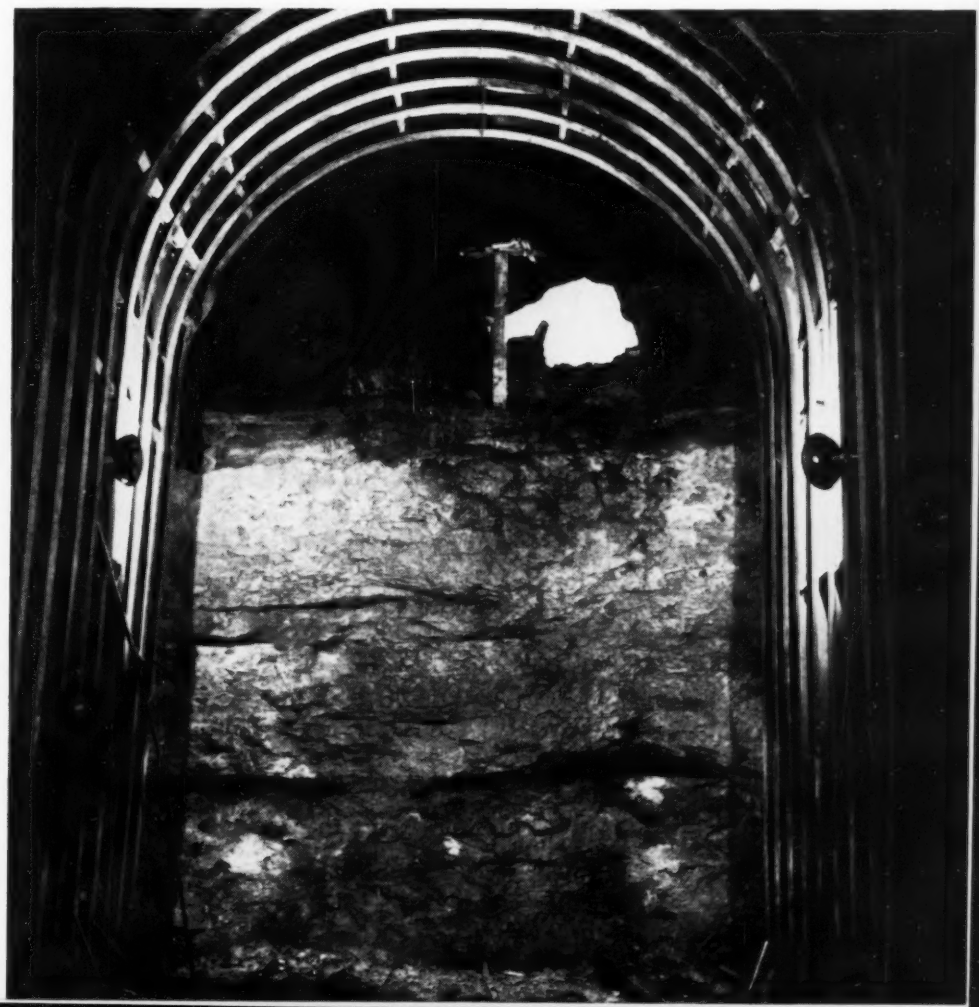
EVEN when tunnel ground is pretty good, such as this stretch where 4-ft. spacing of ribs is adequate, old mine rooms off to side must be shored up and braced to steel timbering system. Lower sidewall is lagged and backfilled as usual to prevent slides or falls wedging against posts and kicking them in.

a Presdweld pneumatic gun behind a 60-ft. job-made traveling form. Concrete was dry-batched outside and mixed in the tunnel close to the gun.

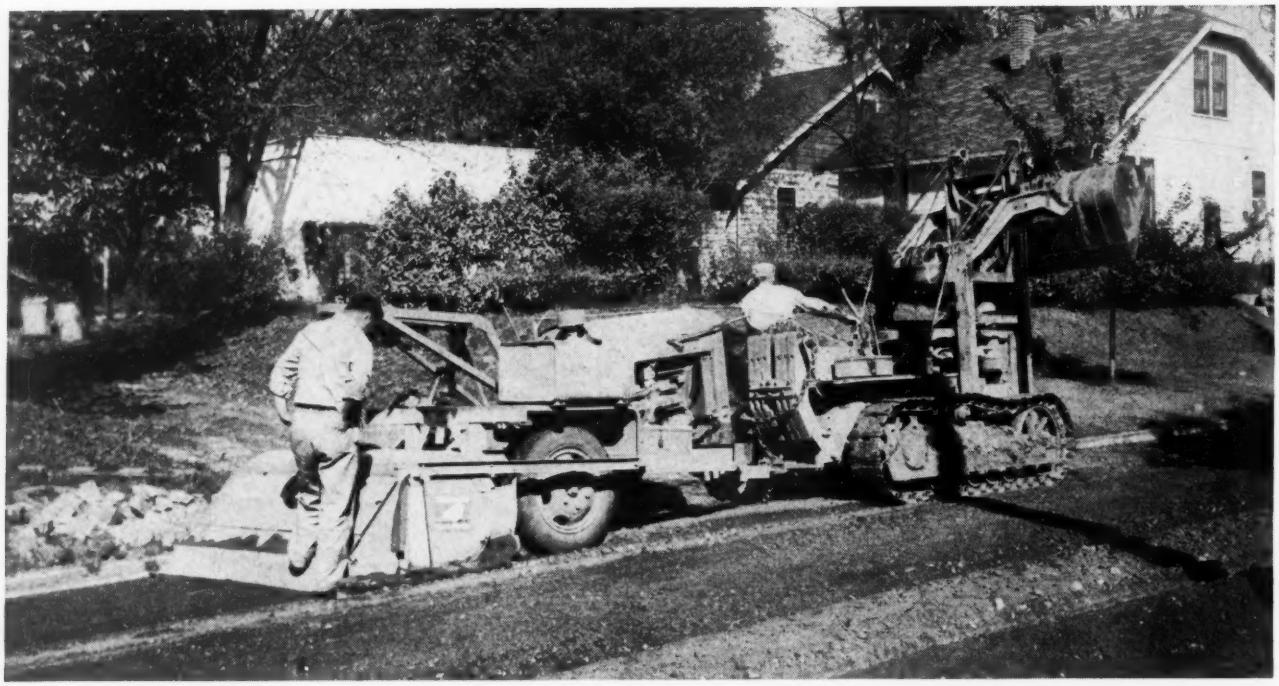
In charge of the project for the Baltimore & Ohio R.R. under Chief Engineer A. C. Clarke were Joseph W. Jones, Regional Engineer; Geo. E. Norris, Senior Assistant Engineer; Dave Dunn, Project Engineer; and Earl Scharper, Resident Engineer. John W. Rogers, Vice-President, directed the job for Bates & Rogers Construction Corp., Chicago, with the late James Strong as superintendent in direct charge.

Editor's Note: Lough Tunnel is the monument of a great tunnel man for Jim Strong, whose patience, experience and ingenuity had a lot to do with successful completion of this difficult job, died suddenly of a heart attack just as the bore was completed. Jim was far from the rough, tough type of tunnel superintendent; he was always gentle, soft-spoken and considerate of those who worked with and for him. Yet he was persistent when he knew he was right, and that persistence pushed him through many a tough tunnel spot. Personally we miss him, along with his legion of friends, for we came to know and respect Jim in our early days in contracting with Bates & Rogers. Jim Strong died in the harness upon licking a difficult tunnel job—the way he often said he wanted to go.—Rich.

DAYLIGHT AT LAST. Tunnel (below) holed through into east approach cut, ready for last round signifying successful completion of difficult job.



Soil-Cement Paving for Peoria Streets



1. Soil in place is pulverized . . .
First step is ripping up old street material with scarifier, followed by pulverizing, as shown here, with Seaman Pulvi-Mixer pulled by Caterpillar tractor. Traxcavator shovel on tractor later cleans up and loads all excess material.

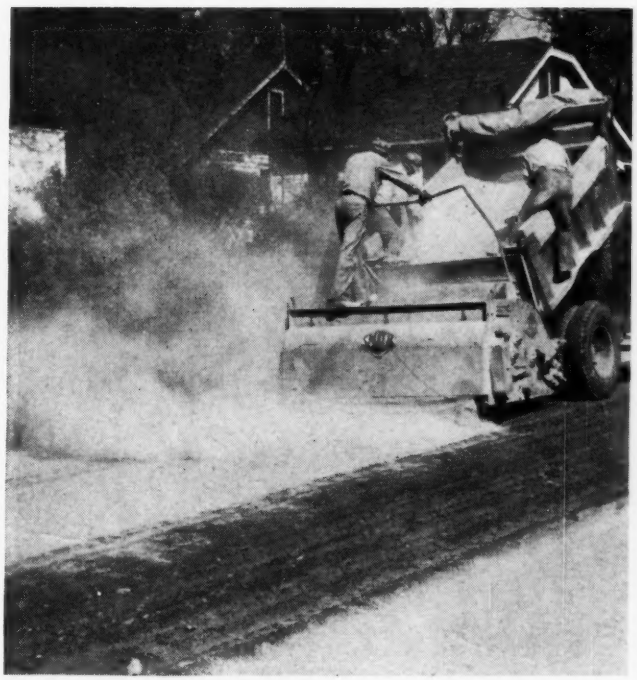
4. Water is added to mix . . .
Sprinkler tank distributes water over soil and cement mixture at controlled rate.

5. Grader again mixes materials . . .
Caterpillar motor grader turns soil several times to insure uniform moisture content.

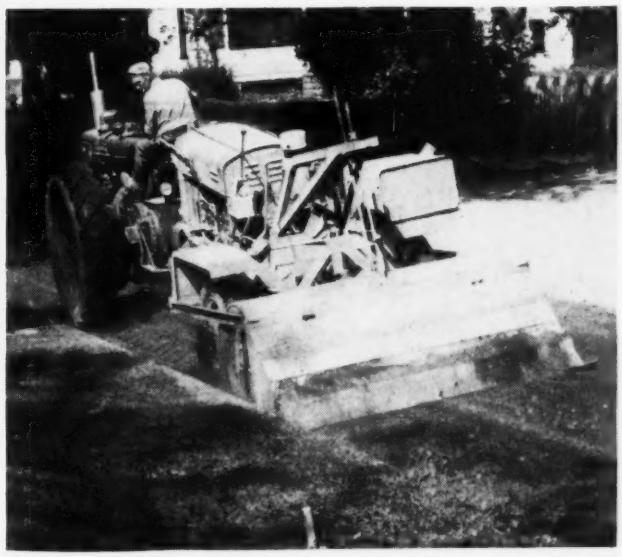
BY PAVING his city streets with cement-stabilized soil, L. D. Jeffries, Peoria Commissioner of Public Works, stretched both time and money for his municipality. While cement-soil stabilization has become quite common on rural and secondary streets, this marks one of its first appearances on city thoroughfares.

Only two days were required to complete the soil stabilization of three blocks of Peoria Avenue in this pioneering effort at low-cost paving. Later the job was surfaced with 1½-in. asphalt hot mix.

The S.M.H. Construction Co. of Peoria was awarded the contract with a bid of $1.93 per sq.yd. for 6-in. base and 1½-in. bituminous surface. They then subcontracted to R. A. Cullinan & Son of Tremont, Ill., for the stabilization. Seneca Petroleum Co. handled the asphalt surfacing. The accompanying pictures tell the detail story of the operations.



2. Bulk cement is mechanically spread . . .
New type Smith spreader distributes cement from truck evenly over material to be stabilized. On this job cement runs 9 percent or 2.43 bags per cu.yd.



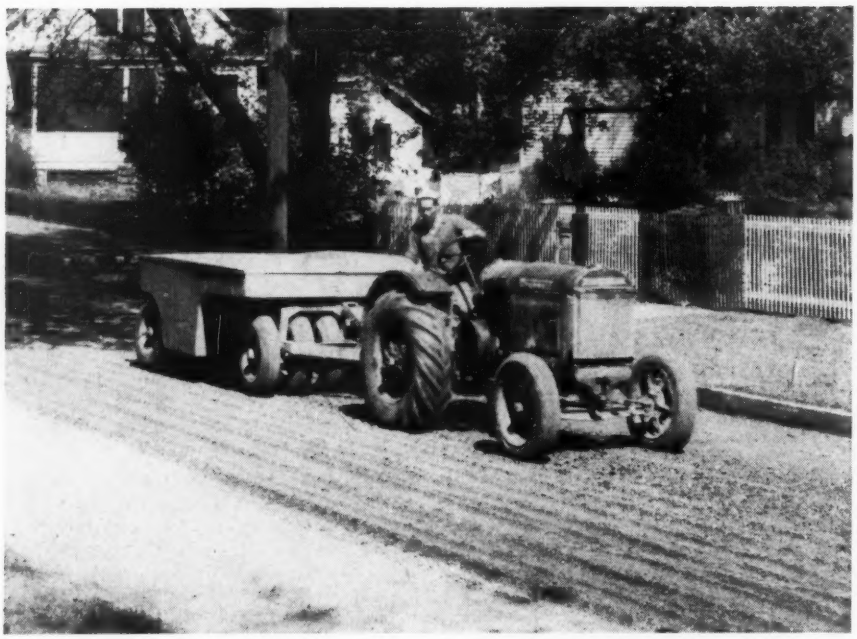
3. Mixer works cement into soil . . .
Same Pulvi-Mixer that first pulverized the soil in place now mixes cement into top 6-in. layer of material for stabilization. This time it is pulled by light farm tractor.

(Continued on next page)

6. Tamping roller compacts stabilized soil . . .
Heavy sheepsfoot roller compacts moistened soil. Then surface is shaped by motor grader.

These fellows did job . . .
R. A. CULLINAN, JR. (left), contractor, and DALE COLLINS, superintendent.

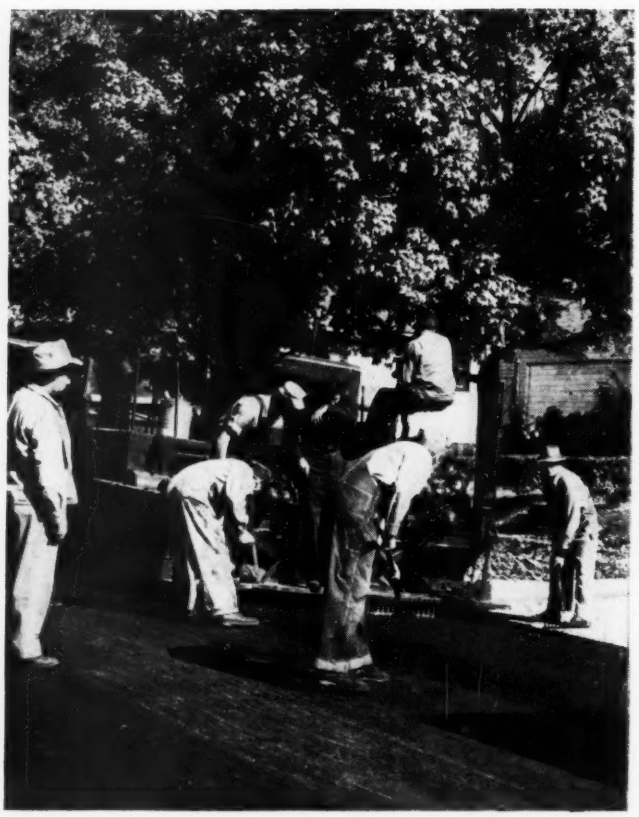
Soil Cement Paving... Continued



7. Further compaction by pneumatic tired roller . . .
Shaped, stabilized, soil section is now rolled with six-ton multiple wheel pneumatic tired roller.

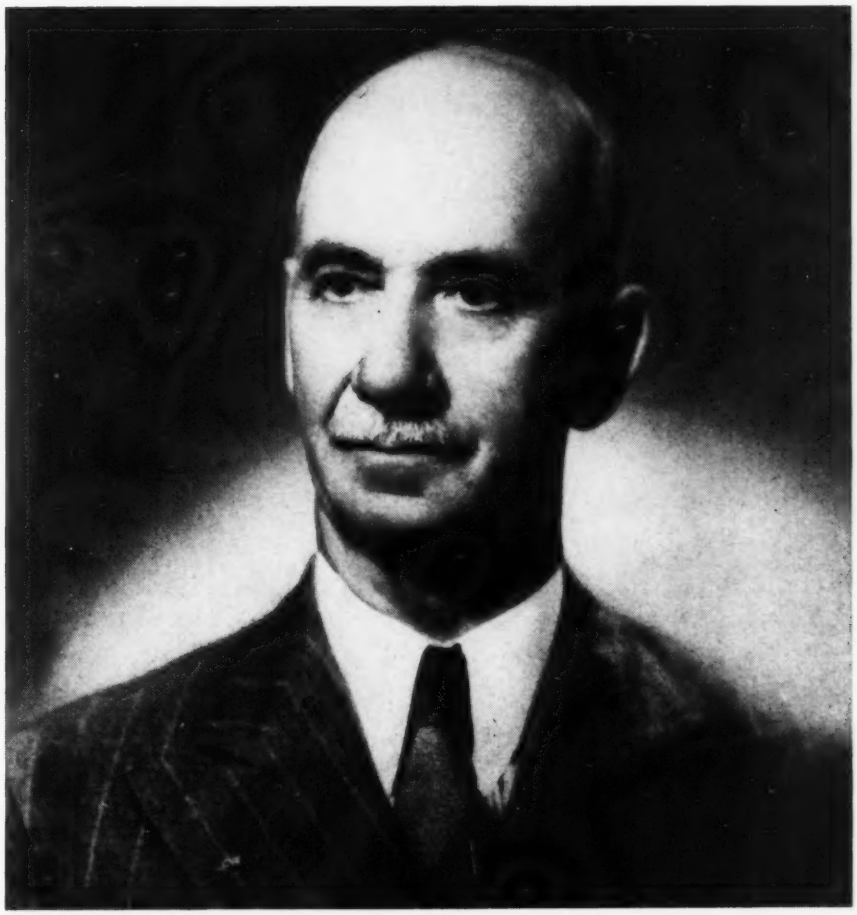
8. Final rolling by tandem roller . . .
Following final blading by motor grader stabilized base gets another rolling with this 10-ton rig as last step before surfacing.

9. Primer coat, first step in surfacing . . .
Light coat of bituminous material serving as tack coating is applied to road by pressurized distributor. Primer coat also prevents evaporation from stabilized base.



10. Asphalt paver lays hot-mix surface . . .
Raking crew puts final touch on 1½-in. hot asphalt surface prior to rolling.

Cited for Service



WILLIAM ERNEST KIER

HE STUDIED to be a minister, but Fate stepped in and made him a contractor—and a great one at that. Fifty years in construction qualifies William Ernest Kier, head of W. E. Kier Construction Company, San Diego, as dean of West Coast contractors. Yet through a half century of construction, from the days of slip scrapers and imported Belgian natural cement to modern times, Ernest Kier has never wavered from his early Christian beliefs and principles.

Kier was born at Eldora, Iowa, in 1874, was graduated from Eldora High School and entered a theological seminary for training. When he was 18, his father's death in an explosion ended his hopes for the ministry, for the young lad had to quit school and go to work. After a short career as schoolteacher and a brief, but profitable, venture in operating a country store on borrowed money young Ernest went to Colorado Springs, Colo. Here, in 1898, he joined James W. Atkinson in the construction business. His first contract was for Perkins Memorial Hall at Colorado College.

After eight years with Atkinson, Kier in 1906 organized his own firm, W. E. Kier Construction Co., starting out with the job of building the Methodist Church at Winfield, Kan.

For several years Ernest specialized in church building in Little Rock, Ark., and Hutchinson, Kan., but was forced to move west because of poor health. En route to the coast he stopped long enough in Weiser, Idaho, to build a hotel, and ended up in San Diego in 1912. Shortly afterwards he took his brother, Elmer L., into partnership. No further organization changes were made until 1940, when Elmer's son, John, joined the firm and the company was incorporated, Ernest still remaining as president.

For 36 years the Kier company has been active in the Far West. They built Coolidge Dam and much of the San Diego Naval and Marine Base and were part of the famous Mason-Walsh-Atkinson-Kier combination at Grand Coulee Dam. War-time joint ventures found them in Camp Callans and Ft. Rosecrans, on the Flagstaff Ammunition Depot, and on the Long Beach Army Base. They are now associated with Dorena Dam in Oregon and Harlan County Dam in Kansas.

Ernest Kier has long been interested in the welfare of his industry, as evidenced by his activities in the Associated General Contractors of America. Though not present at the organization meeting in Chicago, he is one of the founders of A.G.C. and has served as Director and a member of numerous committees. He still attends almost every national convention of the association. While somewhat shy and retiring, he will loosen up, if urged, in interesting reminiscences of 50 years in construction. He loves to tell about trying to build with Belgian natural cement, and later with the old wooden - barreled Dykerhoff cement, and he has never lost his affection for the old mule and slip-scraper excavation days.

Ernest Kier has proved that a minister-minded man can operate successfully as a contractor, contrary to prevailing public opinion. His gracious manner, his sound counsel and his tolerant attitude toward mankind endear him to all who know him. His greatest monument is the respect and reverence of his fellow contractors.

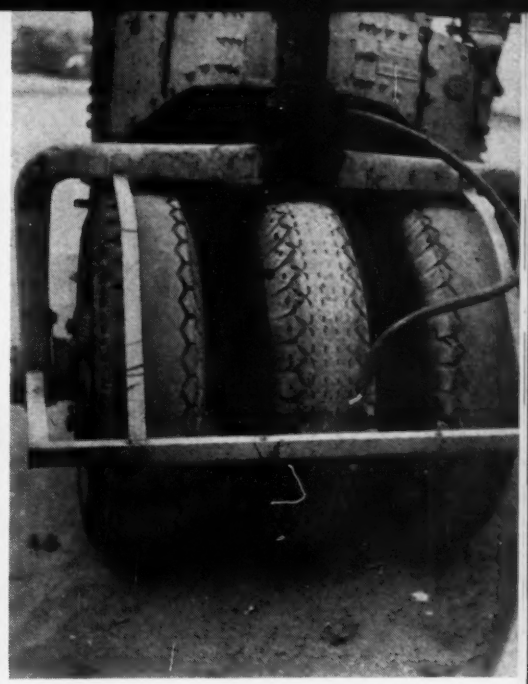
STRANGE LINEUP of highway equipment for soil-cement subgrade stabilization, but Griffith Co. found it worked mighty well on Santa Ana Freeway in California. Wood roadmixer directly behind Caterpillar D8 tractor did soil processing. All work after rough grading is done within steel road forms. Cement previously dumped into furrow is seen in right foreground.

Road Equipment Adapted to S

←

SOMETHING NEW in cement spreaders is coupled with a new idea in spreading. Hopper-bottom truck dumps bulk cement into previously plowed furrow. Feeder on hopper gate is geared to truck travel for uniform distribution of cement regardless of track speed.

MORE NEW IDEAS. Cement dumped into furrow (below) is first mixed by Wood mixer, then is spread by Jaeger concrete spreader riding forms. Blades on spiral spreader unit were built up to larger diameter better to handle comparatively light and fluffy soil-cement mixture. Behind spreader is Johnson float finisher that shapes up subgrade. For this work floats were replaced with grader blades. Some surplus materials caught under steel forms is removed by hand.



ANOTHER STRANGE CONTRAPTION is this Buffalo-Springfield tandem roller with truck tires substituted for steel drums. This rig compacts subgrade after it is shaped up. To moisten subgrade ahead of rolling, roller front end (right) is fitted up with water spray bar.

to Soil-Cement Stabilization

CONVERTING ROAD EQUIPMENT for soil-cement subgrade stabilization work paid off recently for the Griffith Co., Los Angeles contractor, on the Santa Ana Freeway project in southern California. A Wood roadmixer mixed the soil and cement, a Jaeger concrete spreader spread the mixture, a Johnson float further spread it, and a Buffalo-Springfield roller with rubber tires compacted it. Most of this equipment rode the steel pavement forms that were later used for the concrete pavement. Although this may seem like a lot of equipment for a simple job, the contractor found it really worth while.

Following grading of the area to rough grade, the steel forms were set in place. Then the soil (a sandy type) was disked and harrowed. Finally, a furrow was plowed out with a motor grader.

Cement was dumped into this furrow by a special hopper-bottom truck. The discharge mechanism on this truck was geared to the wheels so that cement flowed only as the truck moved. Some 3.3 percent cement was used.

Then came the major group of equipment. Pulled by a D8 Caterpillar tractor were (1) a Wood roadmixer, (2) a water tank cart, (3) a Jaeger spreader, and (4) a Johnson float. The spreader and float finisher could operate under their own power, but it was considered desirable to have them pulled, as compacted dirt is harder to move than fresh concrete.

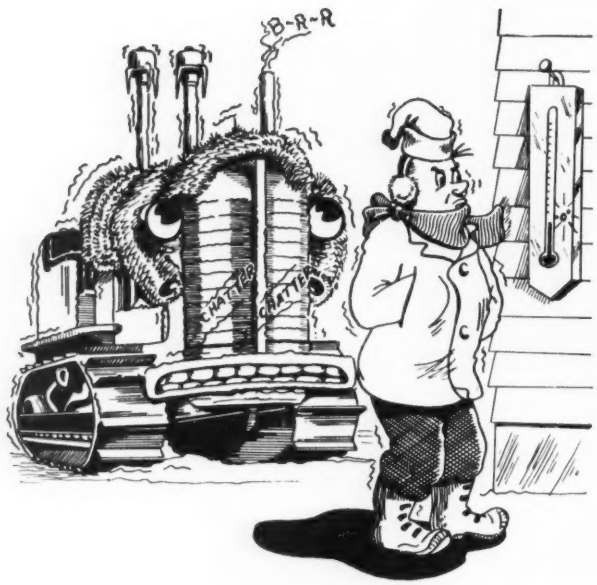
The roadmixer was modified for the addition of water instead of asphalt. Some 8 or 9 percent water was used. The spreader screw was enlarged in diameter to cope with the bulky soil-cement mixture. On the Johnson float the spreader boards were replaced by grader blades. Some surplus that was caught under the steel forms was removed by men with shovels.

The final equipment included a 3-wheel roller with standard steel wheels, a V-type cutter, and a Buffalo-Springfield tandem roller with rubber tires instead of steel drums. The first roller would roll the subgrade and pull the V-cutter forward. When necessary the rubber-tired roller would pull the cutter backward for another pass. A fine water spray applied to the subgrade by the rubber-tired roller helped compaction.

Joe Porcher was superintendent for Griffith Co. The project for the California Division of Highways was under the direction of B. N. Frykland, resident engineer.

WORKING with rubber-tired roller (below) is three-wheel steel roller. Between two rollers is specially rigged planer for final finish. The planer is pulled in one direction by steel roller, in the other by rubber-tired roller.

A Healthy Tractor This Winter



Brrr! I'm freezing to death.

Consulting the M.D.

IF WINTER'S relentless fury annually puts your tractor on the sick list, give heed to some of the "winterization" tips offered by the Allis-Chalmers Tractor Service Department.

A mixture of three parts ethylene glycol anti-freeze with two parts water in the cooling jacket will insure against hardening of the arteries (freezing) at night or loss of solution at normal operating temperatures (between 160 and 180 deg.).

Radiator shutters, curtains or side plates will keep the old girl from getting a chill, and an engine thermostat in good working order will keep fevers or subnormal temperatures at a minimum.

Tractors find it just as hard as humans to wake up on cold mornings. Using lighter fuels such as No. 1 Diesel with a lower pour point, higher cetane number, and lower distillation end point will result in easier starting and cleaner burning. And draining the sediment sumps under the fuel tank every night will keep impurities out of Bessie's blood stream. She can't perform well with impure fuel.

Don't hesitate to consult Bessie's physicians. The manufacturer's service manual will tell you what weight oil to use in the winter. Heavy oil in cold weather will cause such a drag on the starter motor that your tractor will wear itself out before even getting under way in spite of a good battery.

Batteries, hard pressed during winter months, are particularly vulnerable to winter diseases, unless the following rules are remembered: (1) Keep top of

Bessie doesn't like bad fuel.

Ah! Everything's lovely.

batteries clean (2) Electrolyte should cover cell plates; (3) Check battery reading at frequent intervals, and (4) In temperatures below 32 deg., the specific gravity reading should not be allowed to go below 1.250.

Be sure to include early morning calisthenics in your tractor's daily routine and keep it warm enough to insure against stiffness. Prolonged idling and consequent low engine temperatures usually result in dilution of lubricating oil, lacquer or tar-like deposits on valves, pistons, and cylinder lines, all of which cause excessive engine wear and poor operation.

Other "winterization" reminders offered by the Allis-Chalmers Tractor Clinic include: (1) Covering exhaust pipe at night; (2) Cleaning mud and snow off track truck wheels, and support rollers at night; (3) Parking on solid ground to prevent freezing down; (4) And a morning stretch (run tractor back and forth a few times in solid clear place to knock off snow and dirt).

Obtain information from your nearest authorized dealer relative to special cold weather equipment. Bessie can take the stiffest of winters in her stride if you'll just help her out a little.

Plaster Trouble Stumps Spike

OUR NEW staff member, Spike Hennessey, is already in trouble. We got a distress call from a Midwestern contractor who is having plastering trouble. Spike rushed out to investigate and advise, but returned home a beaten-down construction man.

He reports that on single-family houses the contractor used good standard materials, such as Red Top fiber plaster, sand, and Gold Bond lime on a gypsum base. Plaster was applied with a minimum thickness of $\frac{3}{8}$ in.

Spike says he finds a ragged-edge horizontal crack appearing all around the room about 4 ft. above the floors. Some cracks also showed up above and below the windows and in the ceilings. All this happened soon after plastering was completed.

Cold joints in the brown mortar are out as an explanation, for the brown coat joints are in different locations. Also the house was browned in a day and a half, no joints being left even over night. Weather was ideal for plastering, too.

Spike says the trouble doesn't seem to be due to structural shrinkage or settlement or to faulty materials. He's stumped and now calls on you readers for an explanation. Anyone want to hazard a guess? If so, please write the editor.

Crandell Gets Construction Safety Award

UPON RETIRING as General Chairman, Construction Section, National Safety Council, Frank J. Crandell, (right) Liberty Mutual Insurance Co. receives Council Testimonial Award in recognition of his efforts to promote construction safety. Presentation is made at 1948 Safety Congress by Lloyd A. Blanchard, U. S. Corps of Engineers and a former General Chairman of the Construction Section.

Present and Accounted For···A PAGE OF PERSONALITIES

NEW OFFICERS of Western Association of State Highway Officials elected at recent Portland, Ore., meeting are: President, W. C. LEFEBVRE, Arizona state highway engineer; vice-president, W. T. HOLCOMB, Nevada state highway engineer; and secretary-treasurer, W. C. WILLIAMS, assistant state highway engineer.

NEWLY ELECTED PRESIDENT of American Association of State Highway Officials is WESLEY W. POLK, chief highway engineer of Illinois Department of Public Work's Division of Highways.

← NEW DISTRICT ENGINEER of Corps of Engineers, New York District, is COL. W. W. WANAMAKER, who succeeded Col. Charles F. Williams, Sept. 1. On the construction of Alton Lock and Dam, he acted as resident engineer. As district engineer Col. Wanamaker initiated construction of $200,000,000 Garrison Dam in North Dakota.

→ NOMINATED FOR PRESIDENT of American Road Builders' Association in 1949 is ENOCH R. NEEDLES, member of firm of Howard, Needles, Tammen & Bergendoff, consulting engineers, New York, N. Y., specialists in fixed and movable bridge design.

HONORARY MEMBERSHIP in American Society of Civil Engineers has been bestowed upon GENERAL LUCIUS D. CLAY (below), commander-in-chief of American Forces in Europe and military governor of U. S. Zone in Germany.

NEW OFFICERS (below) of Construction Section, National Safety Council, are OTTO S. HOLMSKOG (left), and JOSEPH A. DeLUCA. Holmskog, General Chairman, is Safety Engineer for Employers Mutual Insurance Co., Milwaukee; DeLuca, Vice-Chairman, is Safety Engineer for the duPont Co., Wilmington, Del.

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Below are listed nine of the many Schramm models, portables ranging from 20 to 420 cu. ft. of actual air, the stationary ranging from 2 to 600 cu. ft. displacement.

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We invite you to write today for fully illustrated catalog describing in detail each of the Schramm Air Compressors shown here . . . plus a wide range of other models. We feel the Schramm story is a good one, and offers you a sure way to get your many compressed air jobs done quickly, efficiently, and economically.

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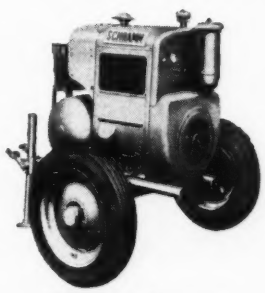
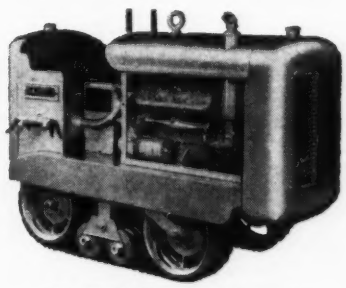
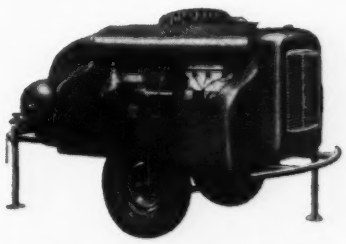


20/35 Model Compressor

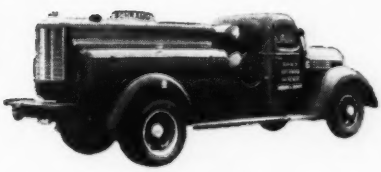


No. 60 Self-Propelled Compressor

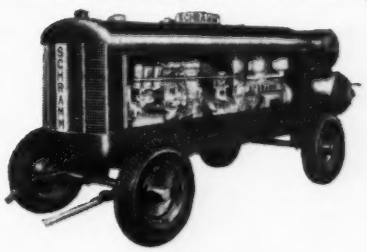


Two-Wheel Trailer Mounting with Tool Boxes

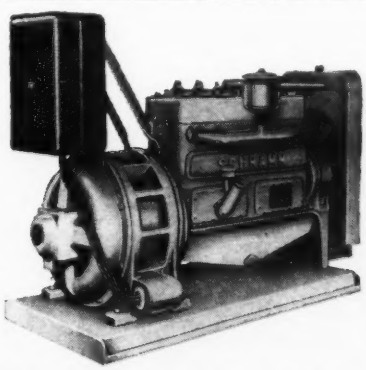
Skidded for Truck Mounting



Truck Mounted

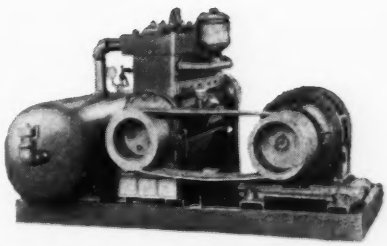


Diesel Engine Drive



Built-in Motor Drive with Cooling Unit and Starter

"V" Belt on Flat Pulley Drive

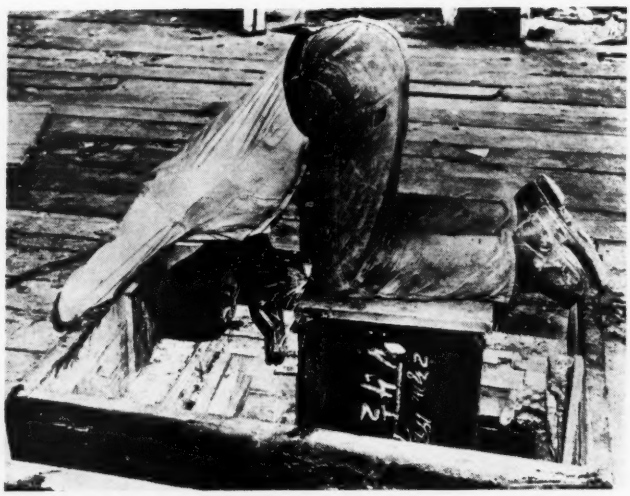


"V" Belt Drive with Air Receiver

JOB oddities

PIRATE BURIED TREASURE is objective of this excavation by Lorain Motocrane rigged with clamshell bucket at Cone Springs, Fla., and operated by J. T. Conway, local contractor. Digging operation with modern construction equipment was started by rumor among old-time local residents that cache of gold "pieces of eight" worth $4,000,000 had been stored away by pirates and might be uncovered.—P.S. It wasn't. Yo Ho Ho and a bottle of rum!

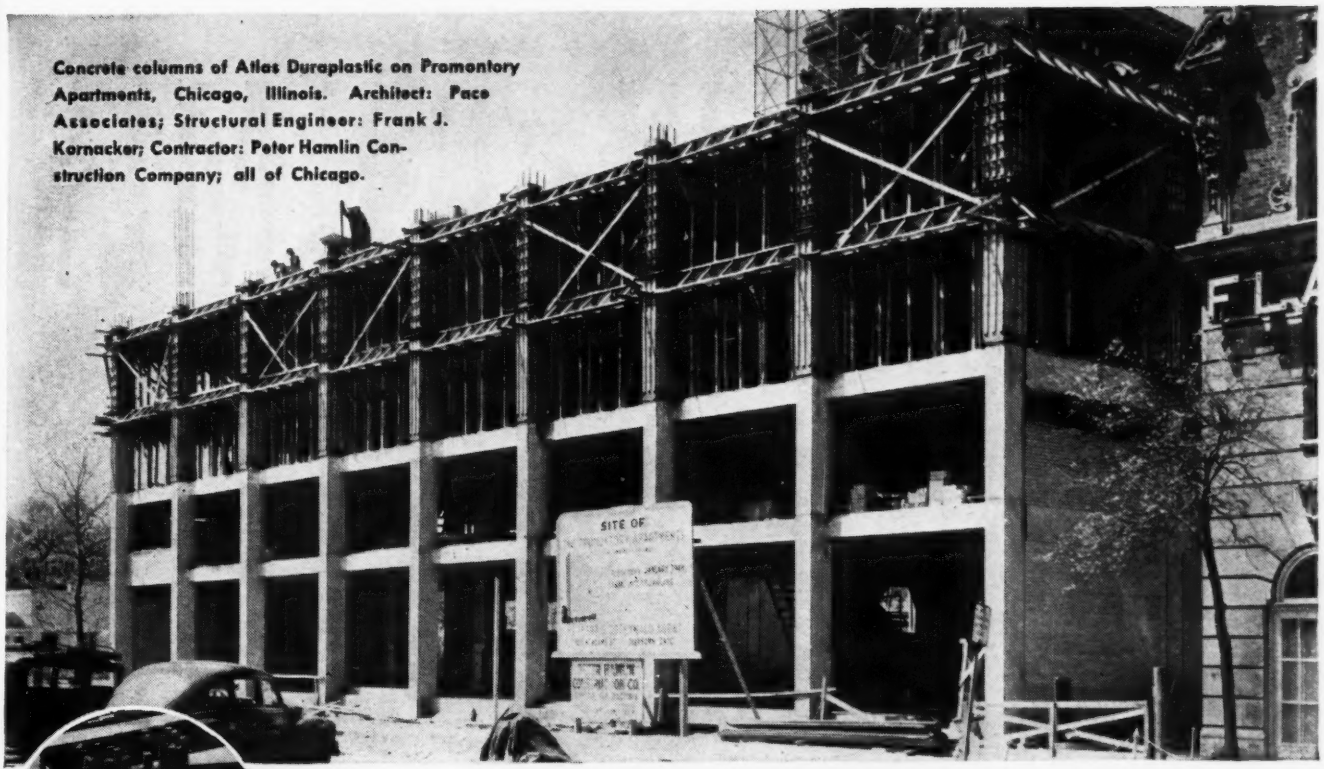
WELCOME SIGN is out on all big U.S. Corps of Engineers flood control projects. This attractive observation post (below) was built by Little Rock District Engineers high on left bank bluff at Bull Shoals Dam in Arkansas. Besides a striking view of construction operations and diverted White River, visitors also get a brochure describing project and can scan typical drawings and progress photos displayed on bulletin boards. Good public relations, and a far cry from old "Keep Out" signs of not so long ago!



OPERATION BOTTOMS-UP: Position not recommended for Monday mornings or in proximity of those easily led into temptation. This is a welding position not described in procedure handbooks and is seldom necessitated by operating conditions. It came in handy, however, in welding column caps on five-story all-welded addition to Register and Tribune building in Des Moines, Iowa.—Photo, Lincoln Electric Co.

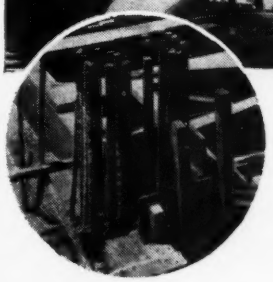
LIKE GIANT CHECKER-BOARD is this experimental "farm" where Portland Cement Association exposes to action of weather concrete boxes, columns and slabs, in long-time studies of cement performance.

TIGHT FIT FOR JEEP (below) within 78-in. dia. concrete pipe of new $750,000 Fifteenth St. storm sewer, built by Anderson & Millensifer, at Great Falls, Mont., didn't prevent DUTCH CAVE, construction superintendent, at left, and WILLIAM J. WENZEL, director of public works, from inspecting new conduit by motor car.

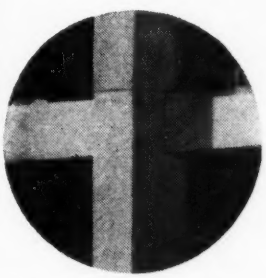


Concrete columns of Atlas Duraplastic on Promontory Apartments, Chicago, Illinois. Architect: Pace Associates; Structural Engineer: Frank J. Kornacker; Contractor: Peter Hamlin Construction Company; all of Chicago.

How Duraplastic licked a tough concrete column problem



Forms in place for concreting with Atlas Duraplastic. Note steel bars and beams that forced work to be done largely by hand.



Finished columns have clean, smooth appearance, free of blemishes or air bubbles.

Outstanding proof of its placeability—concrete successfully placed in a network of steel 12 feet deep!

Filling the column forms with concrete in this mass of vertical and horizontal steel reinforcement was no easy task.

The columns were 12 feet deep with steel bars and beams so close together that no vibrator could be used. Placing with Atlas Duraplastic air-entraining cement was done entirely by hand using long bars for spading on the inside. Other workmen pounded on the outside of the forms with mallets. Concrete had a slump of approximately 5 inches. Cement content was about 7 sacks per yard and water-cement ratio 5-¾ gallons. There were no signs of bleeding or segregation when the concrete was mixed at ground level, hoisted to the upper floors and distributed to the forms in wheelbarrows.

When the forms were removed, contractors were pleased to find a smooth, excellent-looking surface, free of blemishes or air bubbles.

More and more contractors are profiting from the unique features of Atlas Duraplastic for structural work. More uniform, more workable and more durable, Duraplastic costs no more than regular cement. It provides the proper amount of entrained air by intergrinding with the cement the precise amount of air-entraining material needed for satisfactory field performance. No new methods or materials are required.

Duraplastic complies with ASTM and Federal specifications. Write for further information to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, New York.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Des Moines, Duluth, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco

CM-D-76

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AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

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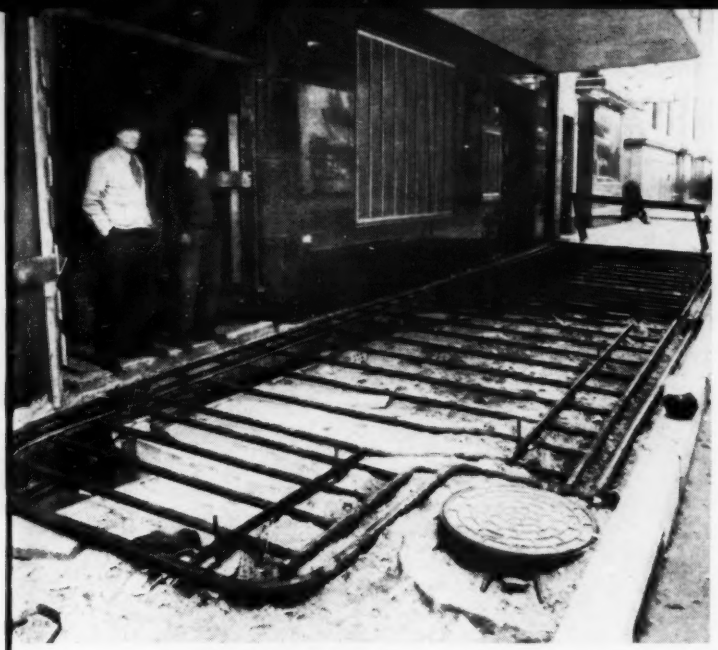
HOW ...they did it

SIDES of part of Colorado River diversion channel at Davis Dam are lined with heavy Gunite over wire mesh reinforcing by American Gunite Co., Salt Lake City, subcontractor for Utah Construction Co.

← BLACKTOP PAVEMENT RECLAMATION in Wayne County, Michigan is accomplished by equipment train that includes Athey force-feed loader and Athey portable crusher, followed by two motor graders. After road has been scarified to 4-in. depth, loader picks up windrowed broken material and delivers it to crusher from which it is discharged on road subgrade and treated with MC-1 oil.

COLD WEATHER PROTECTION (below) for house construction at Chicago's suburban Franklin Park by Caesar Marconi, Chicago contractor, is afforded by a hangar-like structure 100 ft. long, 60 ft. wide and 30 ft. high, large enough to cover two home sites and to allow work to proceed during freezing weather. "Hangar" is mounted on eight steel wheels for movement by tractor.—Wide World Photo.

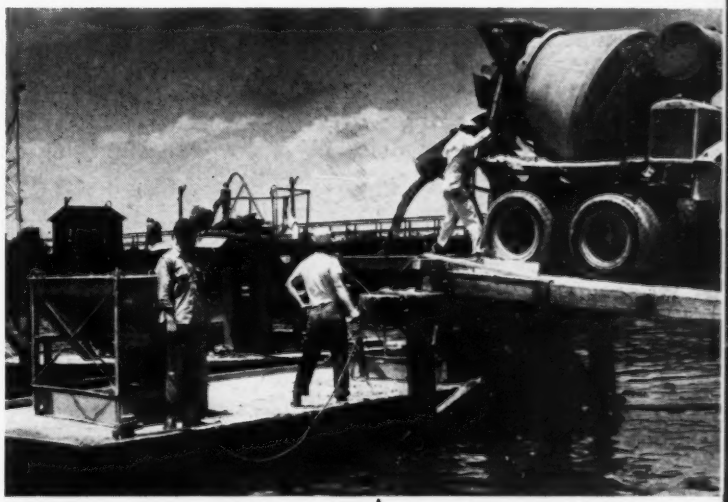
COMPACTION OF BACKFILL (below) in trench 6½ ft. wide and 21 ft. deep for sewer in San Leandro, Calif., is done with Caterpillar D2 tractor lowered into cut and driven over loose earth.



SNOW-FREE SIDEWALK along Peoples Savings Bank Building, Providence, R. I., is made possible without shoveling or use of chemicals by installation of grid of Byers wrought-iron pipe which will carry hot water while embedded in concrete. Melted snow drains into gutter. Marquee also equipped with snow-melting piping.

SNOW REMOVAL from streets of Aurora, Colo., is speeded by combination of mechanical equipment that includes Caterpillar diesel tractor and Athey Mobiloader discharging into truck.

TO SUPPORT live gas main over large sewer pipeline to pass underneath, P. C. Sorenson Co., contractor on White Rock Valley trunk sewer in Dallas drove two bents of two small pipe piles each, then bracketed gas main with pipe cross-struts welded in place as shown here. This work was done in advance of sewer trench excavation.



CONTRACTOR'S NAVY delivers concrete for deck of new 42x400-ft. tanker loading dock at Humble Oil & Refining Co.'s Baytown plant in Texas. Horace E. Williams Co., New Orleans, resorted to this marine transfer to avoid congestion on approach walkway that is common to both new and existing docks. Round trip between dock and transit-mix trucks on shore takes 15 min.—Photo, The Humble Way.

CONCRETE IS HAULED ¾ mi. from central mixing plant (below) to Coulee Dam job in Maxon 3-yd. Dumpcrete truck, then is hoisted for easy discharge into 1-yd. Gar-Bro bucket. Morrison-Knudsen Co., Inc., and Peter Kiewit Sons' Co. are joint contractors for U.S. Bureau of Reclamation.

Assembly Line for Big Roofing Job

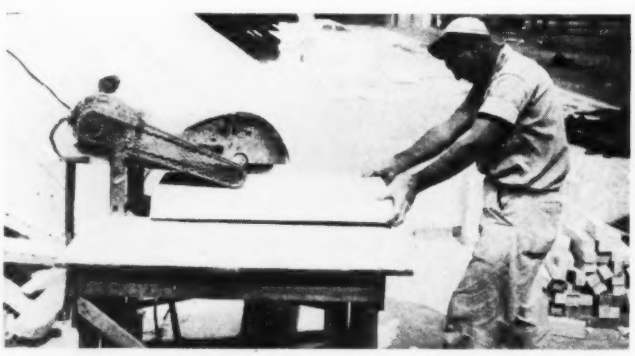
HOW WOULD YOU lay 9 acres of flat roofing? Abbott, Merkt & Co., New York architect engineering firm, are doing it on the 394,000 sq.ft. dead-level roof deck of the new L. Bamberger and Co. department store warehouse in Bloomfield, N. J., by organizing a tile-laying assembly line. The roofing operation starts at the Kaylo insulating tile plant only 20 mi. from the job, where roofing is palletized in parcels 75 slabs per pallet. Trucks deliver the 18x35¼-in. slabs in 3,000 sq.ft. loads.

A waiting crane fitted with chain slings hoists the tile to the roof where it is distributed in wheelbarrows. Masons then grout the joints with a slurry of 1 part gaging plaster, 0.6 part expanded vermiculite, and 1 part water. Grout is dry-mixed to avoid premature hardening, water being added as the mixture is needed. Atlas Roofing Co. workers follow the masons, spot-mopping each tile with pitch and finishing the deck with a Barrett built-up tarred gravel roofing.

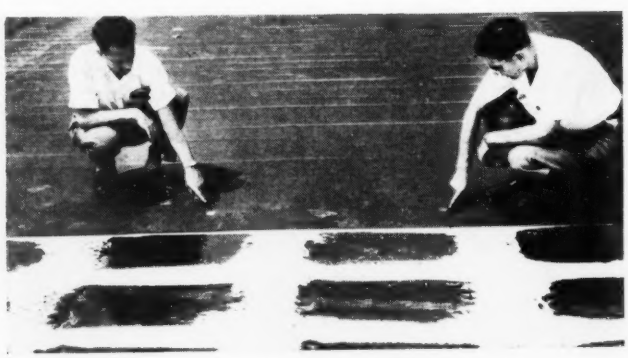
Tile is anchored to 2½-in. square hollow box sub-purlins fillet welded to 12-in. cross-beams on 3-ft. centers. These in turn are framed into 16-in. girders made fast to 8-in. H-section columns posted on 24-ft. centers. Kaylo tile is a lightweight, fireproof insulating material recently developed by American Structural Products Co. in New Jersey. Produced in 2⅝-in. slabs, it is a white cellular compound of calcium silicate. Scheduled for completion early in 1949 this building, covering more than eight football fields, will be the largest department store warehouse ever built on one floor.

1 . . . PRIOR to roof tile setting, hollow-box sub-purlins are fillet welded to cross-beams at 3-ft. centers to support 2¼x18x35¼-in. roofing slabs.

2 . . . LIGHT TILE SLABS, hoisted to roof on pallets by crane, are wheelbarrowed into position and placed by hand. Then joints are sealed with grout. Vertical stem on sub-purlins anchors grout used to bond Kaylo tile.



3 . . . ODD SHAPES to fit corners and edges are cut by power saw set on roof. Scraps are used for shapers to raise fitted tile, making smooth joints.



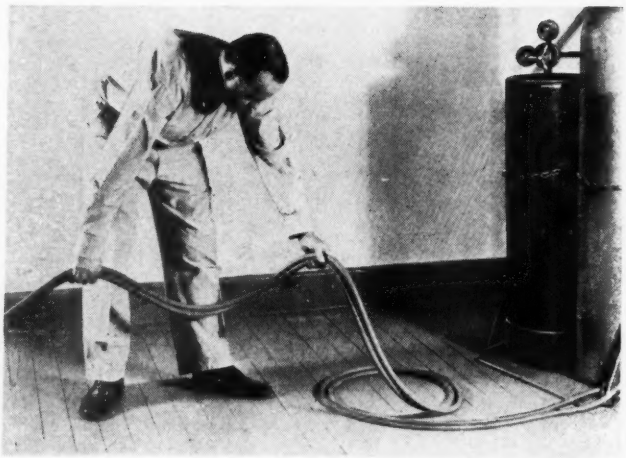
4 . . . AFTER SEALING, each slab is spot-mopped with pitch and roofing felt is nailed into place. Nails and disks are covered by overlap.

Season's Greetings
Cumberland Cements
Cumberland
Portland Cement Company

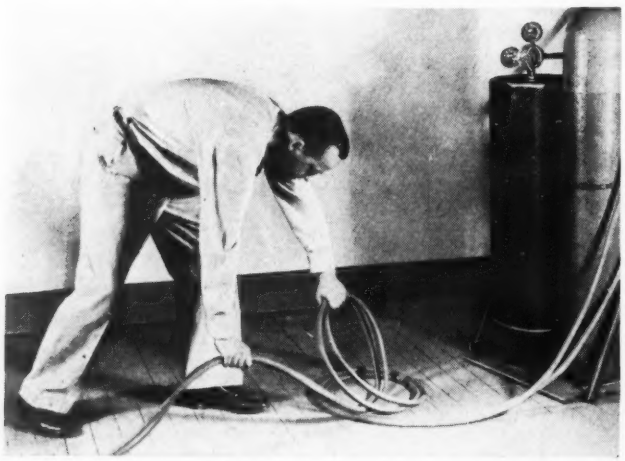
Equipment Maintenance

A Kinkless Hose Coil

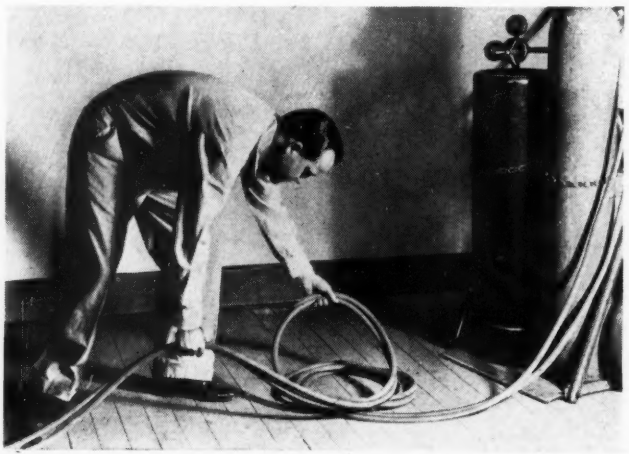
Here's the way to coil oxygen and acetylene hose properly to eliminate kinks and prolong its life. Data and photos, courtesy Linde Air Products Co.



1 . . . LAY FIRST LOOP in usual way. Then place your right hand over hose, knuckles down, as shown by this operator.

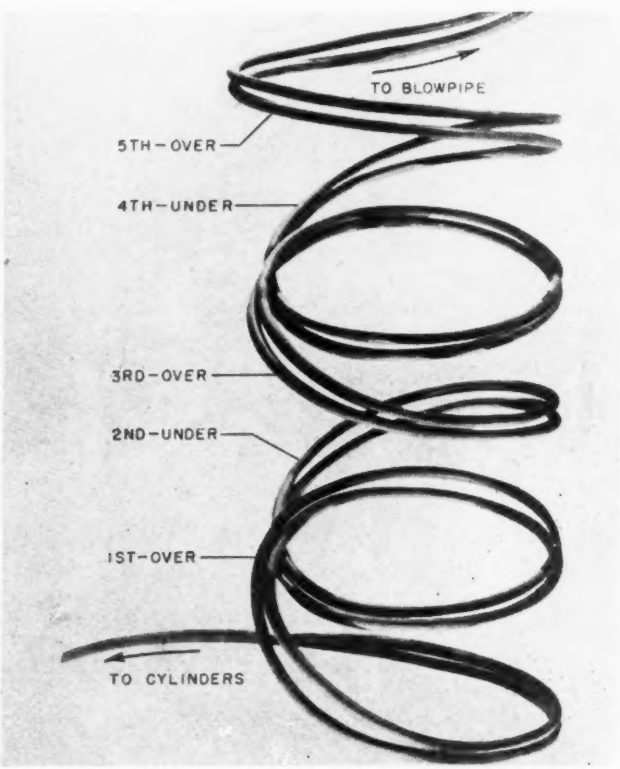


2 . . . ROTATE YOUR RIGHT HAND 90 deg. toward your body, knuckles up. Form second loop by sliding hose underneath itself.



3 . . . LAY THIRD LOOP in usual way. Then position your right hand, as you did in Photo 1, before you make fourth loop.

4 . . . ROTATE YOUR RIGHT HAND again and slide hose under itself to form fourth loop. Fifth loop goes over, sixth under, and so on to end.



5 . . . EVEN NUMBERED LOOPS are slid underneath. When you uncoil hose, reverse twists of adjoining loops counteract each other so it doesn't twist.

A NEW YORK STATE stockpile is protected by a cotton mat sprayed with tar. Overlapping sheets protect abrasive from seepage during the winter months

HEAVY COATINGS of tar or asphalt sprayed over surface of abrasive have been found satisfactory and inexpensive. This pile is sprayed with a bituminous material.

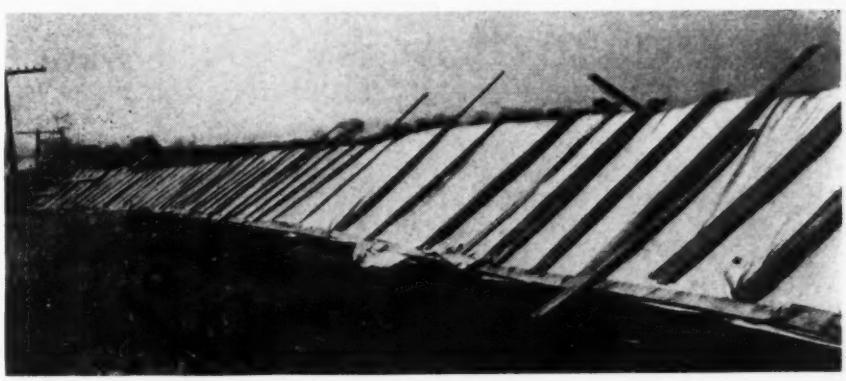
Simple Storage for Treated Abrasives

BINS are considered best for storage of calcium chloride treated abrasives for highway ice control, but they are often expensive and sometimes impractical. Outdoor storage of treated abrasives is satisfactory provided the piles are protected. Here are pictured four methods of protection during the winter months as shown in the current issue of *Calcium Chloride News*.

Protection Necessary

The need for some kind of protection is emphasized by last winter tests which substantiate the old adage that an ounce of prevention is worth a pound of cure. On a 112-day test made in severe weather near Syracuse, N. Y., it was found that calcium chloride loss in protected piles averaged only 17 percent as compared with an average loss of 79 percent in unprotected piles. In the latter it was found rains and melting snows drove the calcium chloride out of the pile into the ground. Frozen crusts which must be discarded when loading for spreading also take their toll in unprotected piles. Another suggestion, not illustrated, is use of old boxcars, purchased for $250 each.

PIT WITH SHALLOW ROOF shelters abrasive from snow in New Hampshire.



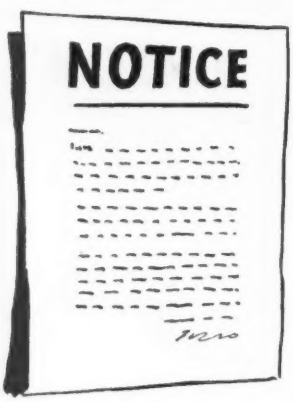
LONG TRIANGULAR stockpile is covered with heavy tar paper held in place by scrap lumber. Cross-sections 6 ft. high and 14 ft. at base are recommended for this type of storage.

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB

By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

The Case of the Non-Notification



Tractor Conn had borrowed money from his bank, pledged certain collateral as security, and the pledge agreement provided that "the said stock may be sold by the said bank, at public or private sale and without notice to the said Tractor Conn."

"In case of the sale by the pledgee of any pledged property ten days' notice in writing of said sale shall first be served on the pledgor," the state law provides.

The note in question was not paid when due, the bank sold the stock at a private sale without notifying Conn, and the latter objected.

"You were bound to give me a written notice according to the State law," was Tractor Conn's contention.

"Your agreement that you signed authorizing us to sell without notice governs, and not the statute," the bank argued, and the Supreme Court of Michigan ruled in favor of the bank.

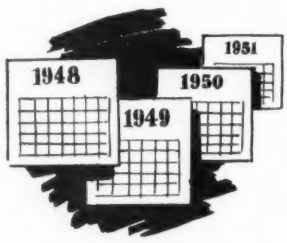
The Case of the Preferred Creditor

Tractor Conn had finished the small job he had for an out-of-town owner, drew a draft on him, and sent it to a bank in the owner's home town. When the bank notified Conn's owner that the draft had arrived, the owner had ample funds in the same bank to cover the draft and the bank forwarded its cashier's check to Conn.

"That's a bit of luck, for I was worried about that account," Conn said to himself, but the bank failed before the cashier's check could be presented and Tractor Conn claimed that he was entitled to rank as a preferred creditor.

"If Conn's owner, instead of paying the draft upon him by check, had used currency for the purpose, there can be no doubt that the receiver would hold the account in trust for Conn, for the total of cash, or its equivalent, which came into his hands would necessarily, or at all events presumptively, have been that much larger by reason of such payment. The court is of the opinion that the rule applies that, where a payment to a bank is made by a check drawn thereon, the result is the same as though the depositor had presented his check, received the money over the counter, and then used it in making the payment," said the Kansas Courts in ruling in Tractor Conn's favor.

The Case of the Disputed Time



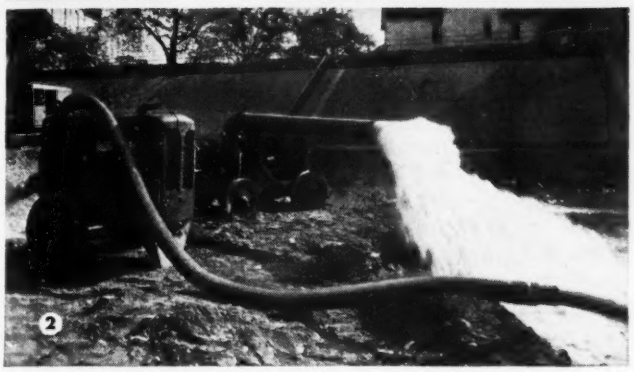
A Delaware building contract provided that the time in which Tractor Conn should be bound to build his contract "was not to be taken out less than four years," and a dispute arose as to the interpretation of the agreement.

"You're bound to build the contract in a reasonable time, and if a reasonable time is less than four years, you've got to have the contract completed by that time, or I can throw you off the work," was the owner's argument.

"No, I have four full years in which to build the contract," Tractor Conn maintained, and the Delaware courts ruled in his favor.

More Legal Adventures of Tractor Conn Next Month

here's Low Cost dewatering



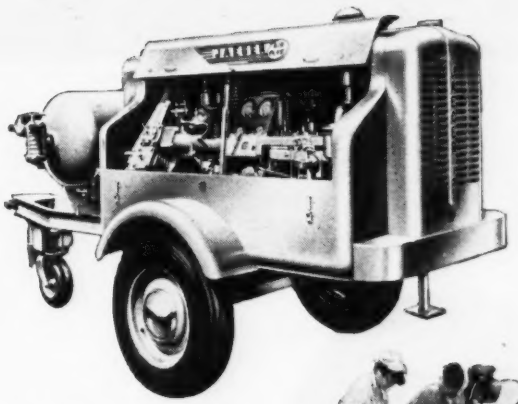
1. This contractor was able to lay telephone conduit in a river bed behind a row of easily portable Jaeger pumps and simple drainage lines . . .

2. This low-cost system was practical because his Jaeger pumps primed quickly and unfailingly as soon as water sealed the intake and had the big capacity needed to keep the trench pumped out.

JAEGER PUMPS lick water problems

Whenever water is your problem, call your Jaeger distributor. He keeps a big stock of pumps and fittings ready *for sale or rent*. And his pumps are Jaeger "Sure Primes"—built and powered beyond their guaranteed performance, doubly sure and fast to prime and enclosed from weather to keep them dry, quick-starting, efficient and long-lived.

New Jaeger 125 FT. Compressor does 40% more work yet sells at 105 ft. price!



125 cfm of air runs 2 big breakers or 3 medium duty breakers at full 90 lbs. pressure — doing 40% more work than you can do with weak 70 lbs. pressure from 105 ft. of air.
Costs no more than old "single breaker" 105 ft. compressors, weighs no more, and does not use an ounce more fuel when its *additional* air capacity is not required.

Model 75 cfm

Model 185 cfm

Model 250 cfm

Model 365 cfm

Model 600 cfm

All "New Standard" Air-Plus Compressors deliver more air to run more tools at full 90 lbs. pressure, yet cost no more than obsolete "old standard" sizes:

MODEL 75 cfm runs a heavy breaker, 2 light breakers or 3 tampers at 90 lbs. pressure — which a model 60 can't do.

MODEL 185 cfm runs 3 heavy breakers or medium rock drills at 90 lbs. pressure — which a model 160 can't do.

MODEL 250 cfm runs 4 heavy breakers, 2 heavy drills or medium wagon drill at 90 lbs. pressure — which a model 210 can't do.

MODEL 365 cfm runs a heavy wagon drill plus rock drill or heavy breaker at 90 lbs. pressure — which a model 315 can't do.

MODEL 600 cfm runs 2 heavy wagon drills plus heavy rock drill at 90 lbs. pressure — which a model 500 can't do.

See your Jaeger distributor or send for new Catalog JC-8

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Hydraulic Loom Weaves Reinforcing Mats

1 . . . Fabrication starts in truss forming machine . . .
Two banks of solenoid-controlled hydraulic vises draw diagonal truss sections from ¼-in. rod. Finished diagonals hang from side of machine.

JUST AS SIMPLE as Grandma hooking a rug, a process for mass production of welded reinforcing mats has been developed by Steel Building Units Corp. at Whittier, Calif., with a hydraulic loom and a bank of solenoid-controlled forming vises. The product is a double-faced reinforcing assembly, to which forms can be attached, erected in big panels welded together in place.

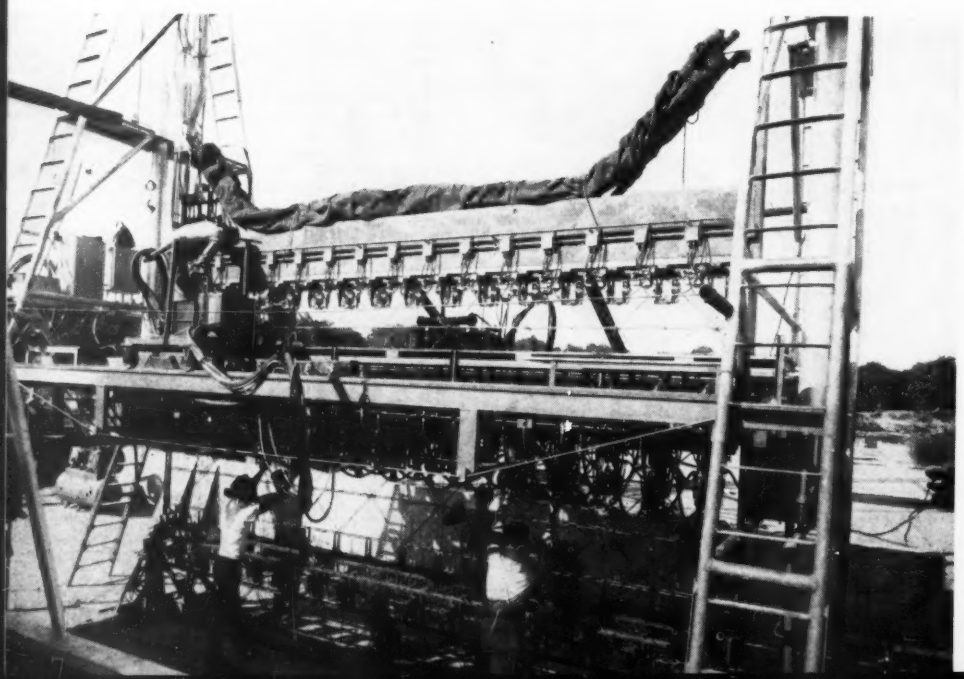
Specially designed manufacturing equipment is turning out an 8x20-ft. steel reinforcing unit every 30 min. Each unit comprises two assembled faces divided by ⅜-in. rod separators, as shown in accompanying pictures. Double stud sections are ⅜-in. steel rods connected by ¼-in. horizontal members on 16-in. centers. Diagonal truss members of ¼-in. rods connect on 32-in. centers with the studs.

Plywood forms, attached to the stud sections with helix clamps, eliminate conventional forms, nails, ties and spreaders. When concrete is poured, two sides of plywood are required but with pneumatic application only one side is needed.

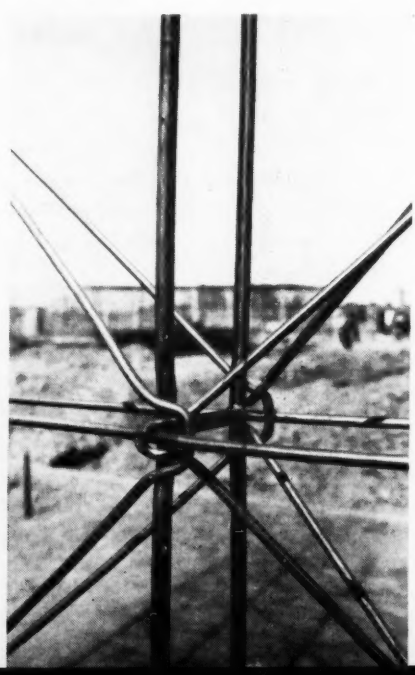
Small holes left by the clamps can easily be filled after the forms have been removed.

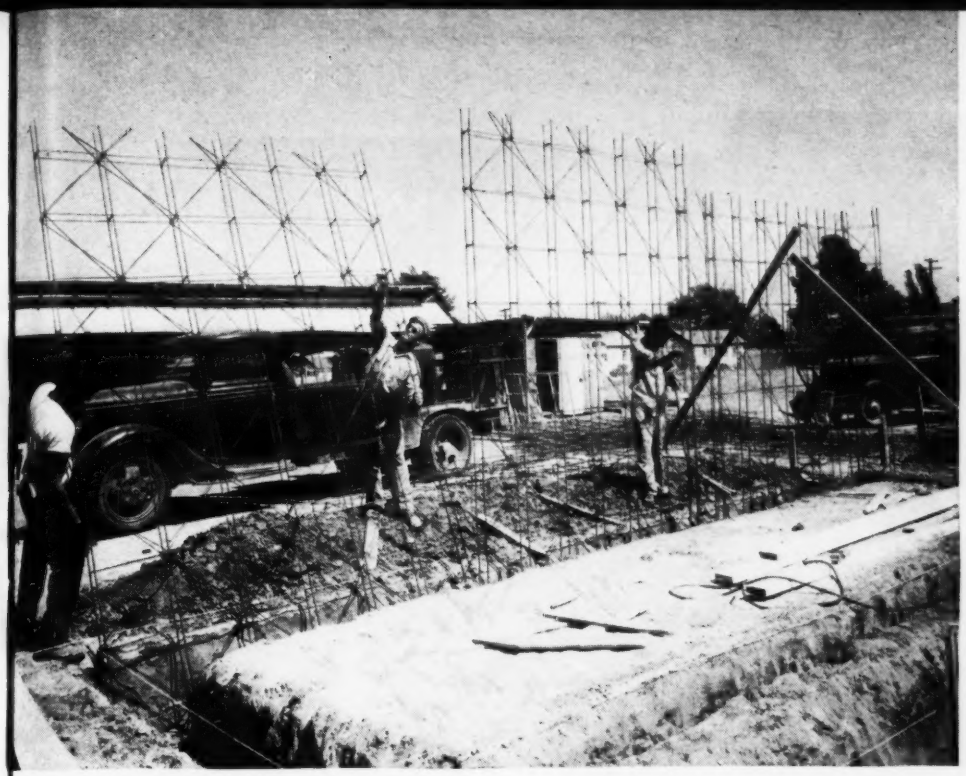
Production of the sections starts when ⅜-in. rods

2 . . . Giant hydraulic loom weaves panel . . .
Individual reinforcing members (below) are assembled and welded in this operation. Rods are stretched and welded at 16-in. intervals, then raised, stretched and welded at the next stop. Loose ends are fixed to lower follow beam and top ends to lead beam.

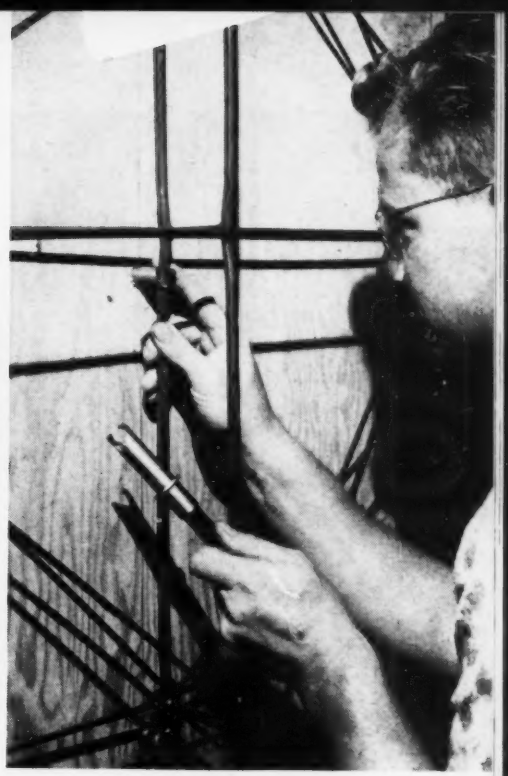


3 . . . Stud members are key to panel system . . .
Truss members (below) are anchored at 32-in. centers. Interlocking and welds at junctions as shown in picture insure rigidity. Diagonals can be seen crossing from inner to outer face of panel.





4 . . . Prefab sections assembled in place . . .
Weighing only 200 lb. apiece, sections are easily handled by two men. Set in foundation trenches, units are embedded directly in footing concrete. Windows and doors are cut later.



5 . . . Usual form ties eliminated . . .
Set at 16-in. intervals, helix clamps hold forms to studs. Length of clamps regulates thickness of concrete. Both clamps and forms can be used on subsequent jobs.

are fed into a hydraulic reciprocating feeder and a hydraulic press which forms knot sockets in the stud sides. After forming, the stud sections are run through a projection welder where they are assembled, cut off, and straightened. When completed, they resemble a small ladder with the separators as rungs.

Diagonal truss members are formed in special shaping machine composed of two banks of forming vises (35 vises per bank) operated by a total of 140 solenoid controls.

Next, the studs, diagonals, and horizontal members are assembled and welded in a giant looming operation.

The entire fabricating process, including stud machine operation, projection welding, diagonal truss formation, and the final looming operation, requires only 14 men.

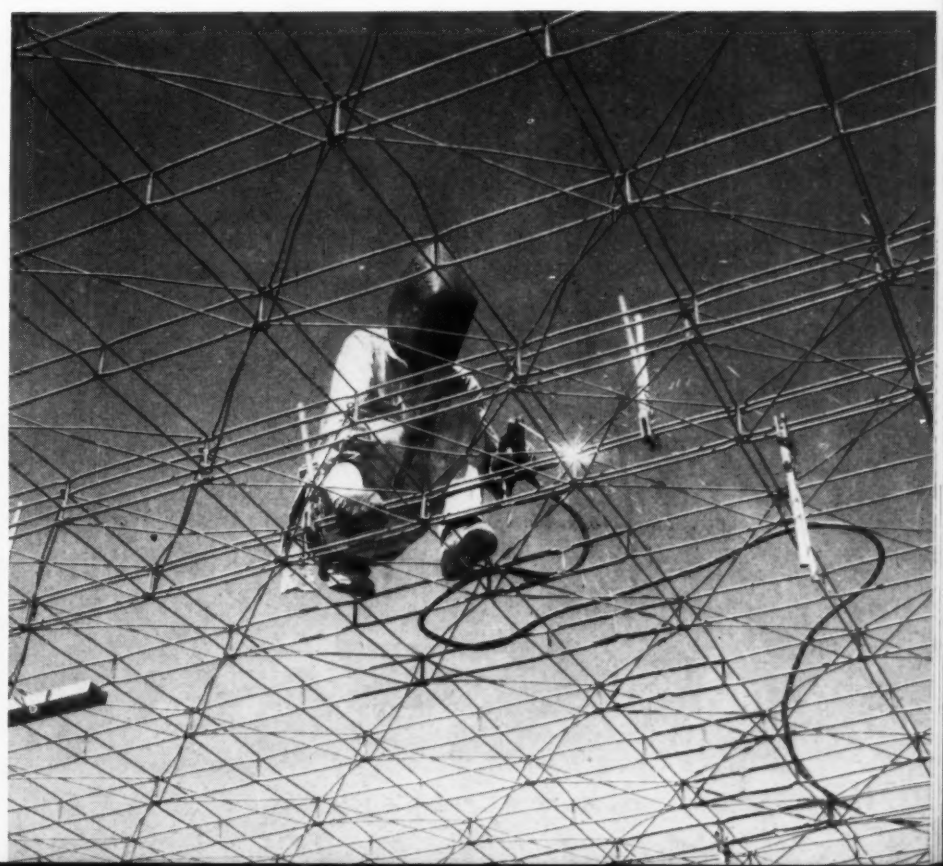
A leveling unit, perfected by Henry Foster, Burbank aeronautical engineer, which is linked into the looming operation assures accuracy to within .0015 in. throughout the 200-ft. span of the section.

On-the-site use of the new product permits the reinforcing assembly to be set in the foundation trench and embedded in the footing concrete. Additional prefab sections are welded on to the lower units to obtain the desired height and shape of the finished building.

Experience has shown that it is more efficient to use whole units on the job, cutting out doors and window openings where specified.

William Hughes, head of Steel Building Units, expressed belief that as the new prefab method becomes more generally used it will prove less expensive than the old method in concrete home and building construction.

6 . . . Prefab sections good for topside also . . .
This spectacular picture shows workmen welding junction on a roofing panel. Roof slab panels are similar to wall sections.



THE TIGER BRAND SPECIALIST SAYS—
"If your wire
USS
AMERICAN
TIGER BRAND
WIRE ROPE
UNITED STATES STEEL

rope takes a beating like this, you ought to check the application"

"The foreman on this job was blowing his top. He was already behind in production when this machine went down. He swore that the wire rope was no good.

"We took a look at the sheaves. They were badly worn. Then I asked him, 'When did you check those grooves?' Nobody on the job could remember when the sheaves had been regrooved.

"We got out a gage. Sure enough, that's where the trouble was. The grooves had worn down so that the proper size gage nowhere near bottomed. Now they're regrooving and I sold him on the idea of letting me check all his equipment. I'll bet we keep his business and his ropes will give twice the service."

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Are you sure you have the RIGHT wire rope for your job!

Are you convinced beyond a doubt that your wire ropes are operating at the lowest obtainable unit cost?

Are you sure that your equipment is contributing fully to long, safe rope life?

If not, you should have a check-up by a TIGER BRAND Specialist—a thoroughly experienced field service engineer.

To show you how the proper application of wire rope can save you money, we have prepared a new booklet to help you check your own operating conditions.

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Gentlemen:

Please send me a copy of your booklet, "Valuable Facts about the use and care of Wire Rope."

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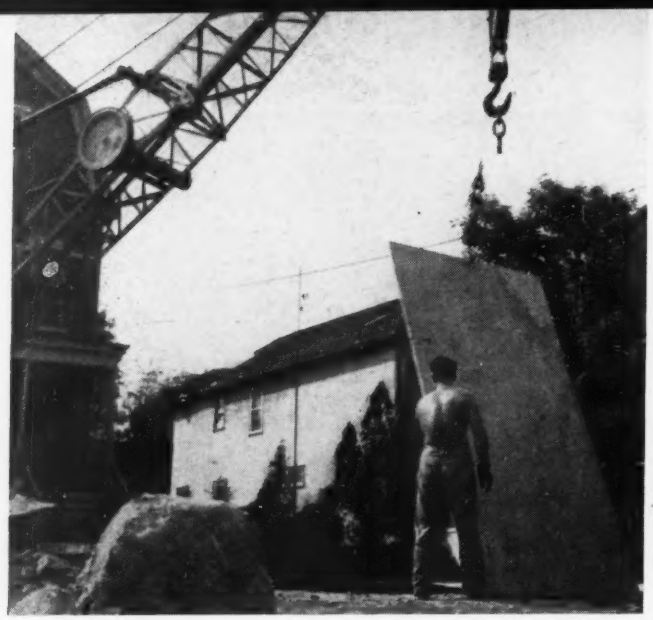
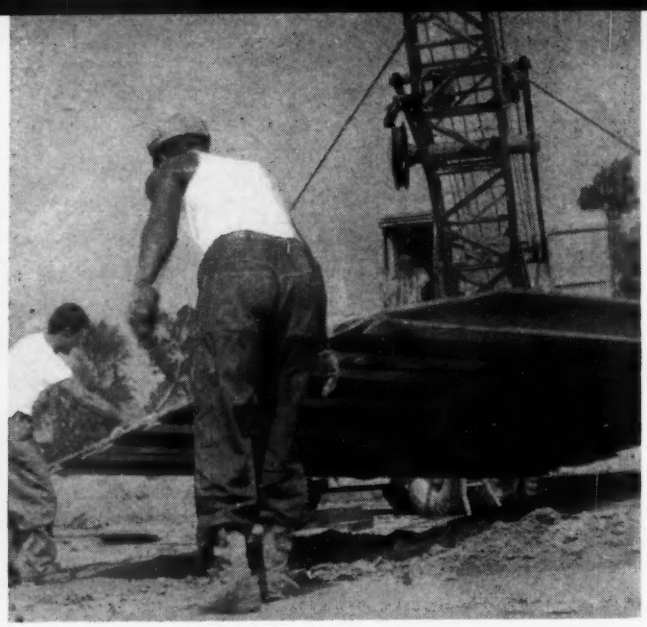
AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL



A SIMPLE 1-in. steel sheet serving as a bridge for pedestrians and light vehicular traffic is lowered into position across pipe ditch by truck crane. Rim holes permit easy slinging.



PREFABRICATED METAL BRIDGE for heavier traffic is swung into place over pipe trench. Battered ends of I-beam and cover plate structure let traffic roll over bridge without bumping.

A Couple of Pipelaying Tricks

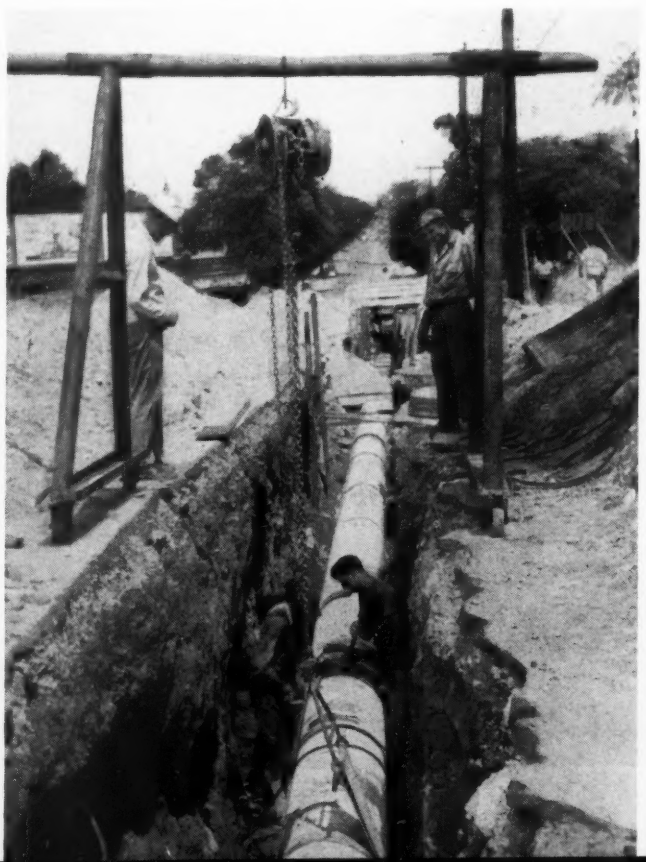
WHILE LAYING a gas transfer main through a heavy traffic area on the outskirts of New York for Consolidated Edison Co., the Slattery Construction Co. of New York came up with a couple of pretty good tricks. The first is a system of prefabricated steel bridges replacing the more cumbersome wooden structures to handle traffic over the open trenches.

Simple 1-in. steel plates proved adequate for foot bridges and light vehicular traffic, while prefabricated bridges of I-beams and ½-in. plate served the heavier loads. Handled by crane and used indefinitely, these one piece bridges are a great saver of both man-hours and material.

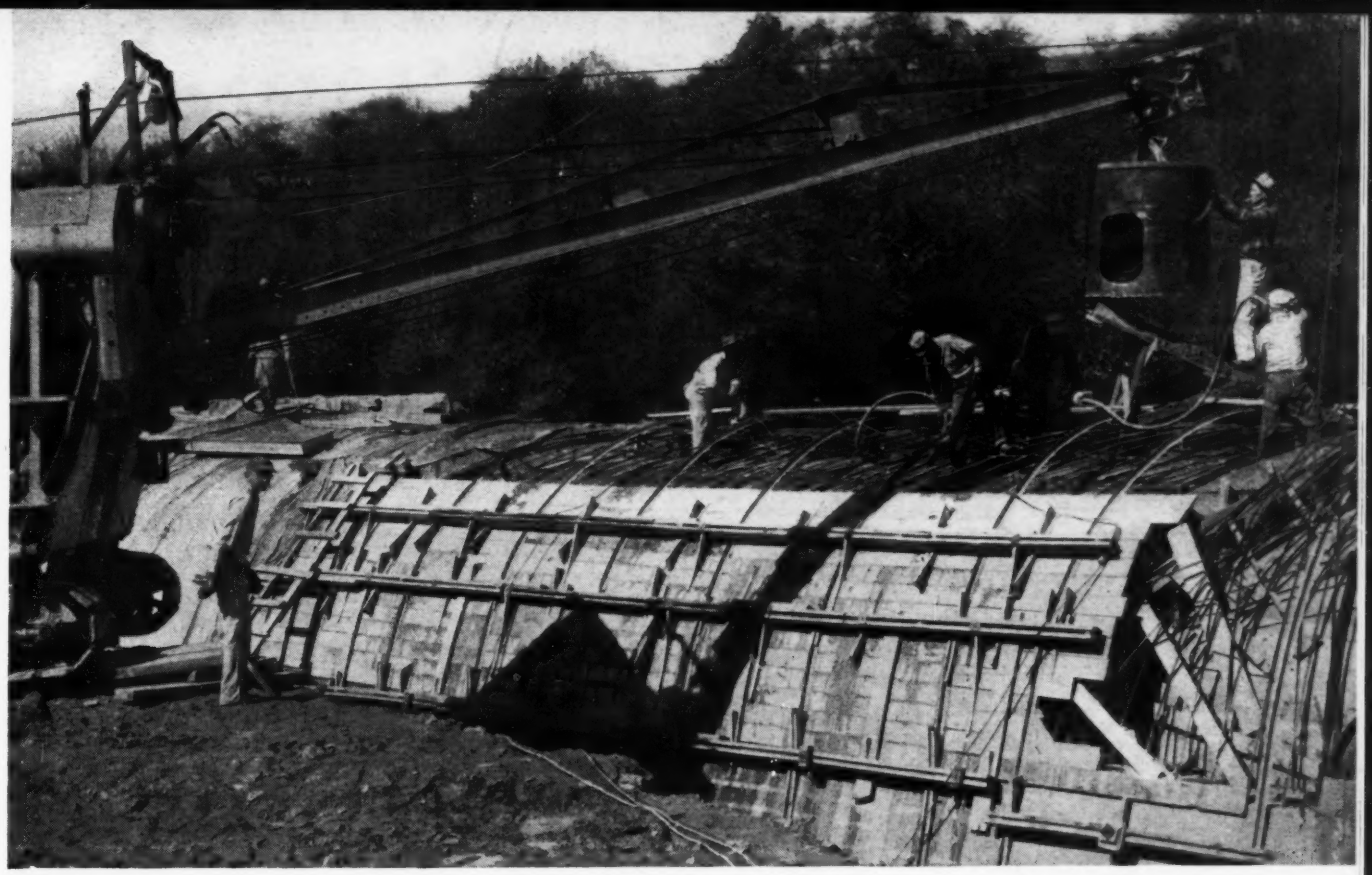
The second trick is an ingenious metal tube, double A-frame pipe hoist on wheels which straddles the trench for lifting and holding the pipe for connecting operations. The rig, equipped with a chain hoist, effectively eliminates the bottlenecks which often develop on such jobs because of shortage of cranes. Now the crane can lay a length of pipe and move on leaving the joint work to the A-frame rigs. It has also been found easier to raise and lower heavy pipe short but exact distances by manual chain hoist than by power crane and signal.

This line will run from the Edison gas plant at Hunt's point in the Bronx, New York, to Pelham Manor city limits, in Westchester county, a distance of 7½ miles.

CHAIN HOIST (below), hung from simple A-frame support on wheels handles pipe in connecting operations freeing crane for pipelaying. Two hoist rigs handle 2½-ton 50-ft. pipe lengths. Other hoist is behind camera.



BEAM TRENCH BRIDGES (below), are sturdy enough to carry heavy traffic without intermediate support.



JOB OF HOLDING external arch forms simplified on Pennsylvania highway by series of steel ribs anchored to footing concrete.

Steel Rings Hold External Arch Forms

STEEL RINGS proved to be the answer to the usually difficult problem of holding external forms in place during pouring for a large reinforced concrete arch culvert on U. S. 66 between Greenburg and Delmont, Pa.

Peter J. Mascaro of Pittsburgh, subcontractor for W. L. Johnson Construction Co. of Columbus, designed a simple form support of half-circle rings anchored to footing concrete on both sides, to which the outside form lagging was attached.

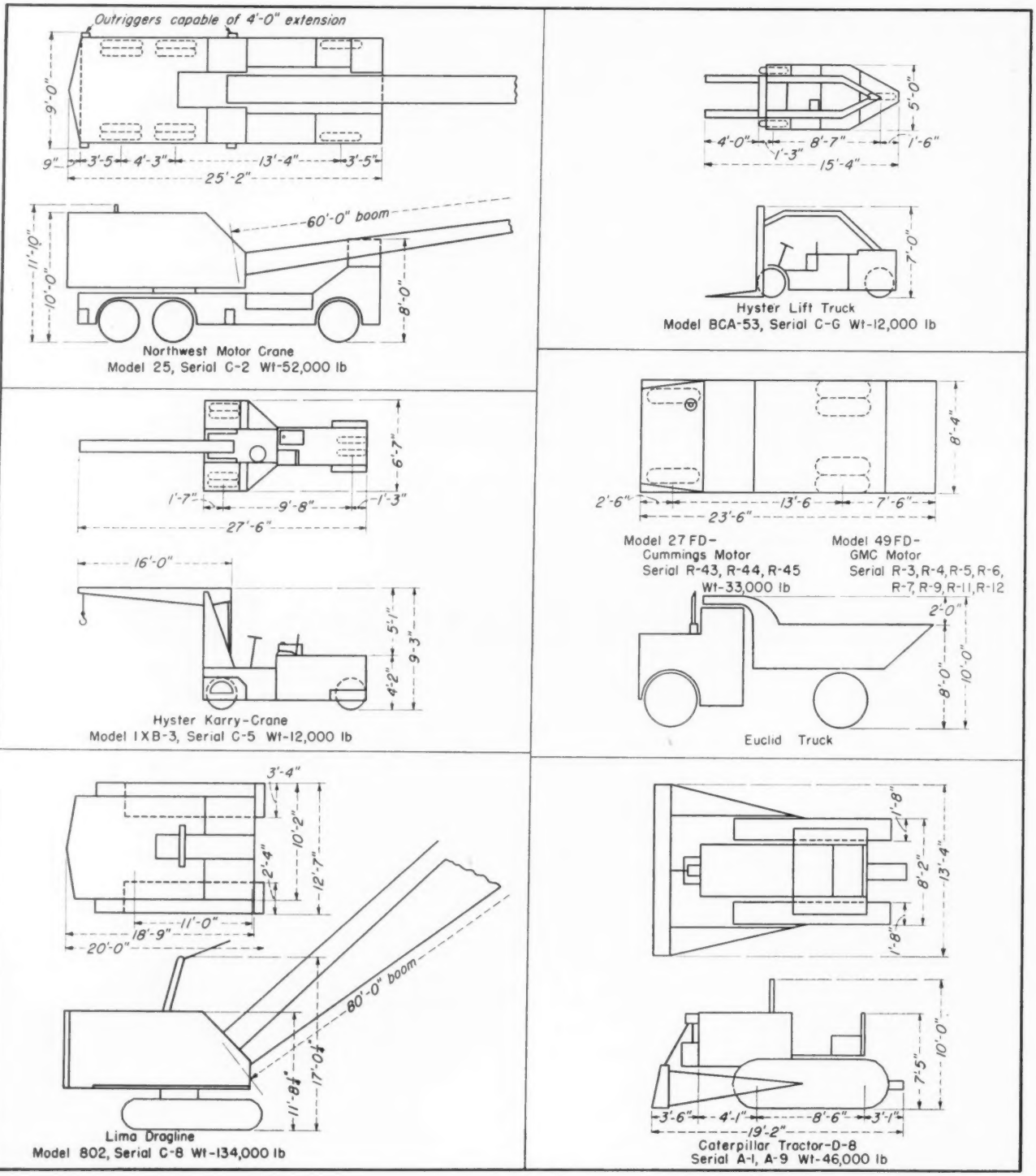
Made by welding two angles together forming a T structural section, the ring braces eliminate the troublesome task of bracing the panels with wooden segments cut to the radius of the outer form. Placed at 5-ft. intervals, each complete steel ring was made of two sections bolted together at top of arch.

Richmond Screw Anchor Tyloops were embedded in the arch footings, which were poured in advance up to the spring line. To these anchors the lower set of outside form wales were fastened with Tyscrews. Two additional wales on each side of the arch held the rings rigid. Concrete was poured in 35-ft. sections with a dual paver.

The lagging, of 2-in. shiplap, was held against the rings by nails bent over the flanges. In spite of fast pouring the forms kept their shape without distortion.

STEEL RIBS on 5-ft. centers are held by lower wales tied to footing concrete by screw anchors. Two additional wales on each side of arch stiffen forms. Horizontal lagging is held againt T-section ribs by nails bent over lower flanges.

Equipment Data on Reference Sketches



QUICK DETERMINATION of weight and clearance dimensions on all equipment at Bull Shoals Dam in Arkansas is now possible because of a file of clearance diagrams such as those shown here. The sketches show name and model designation of the machines, along with gross weight and overall dimensions. Special sketches are drawn for all specially equipped units (a compressor field mounted on a tractor, for example) for future reference.

Information shown on the drawings is invaluable when equipment is moved or shipped, and for aid in designing temporary job bridges and other structures.

The sketches were prepared at the direction of Harrison H. Roberts, chief engineer for Ozark Dam Constructors, contractor on Bull Shoals Dam.

Another Thermoid *First!*

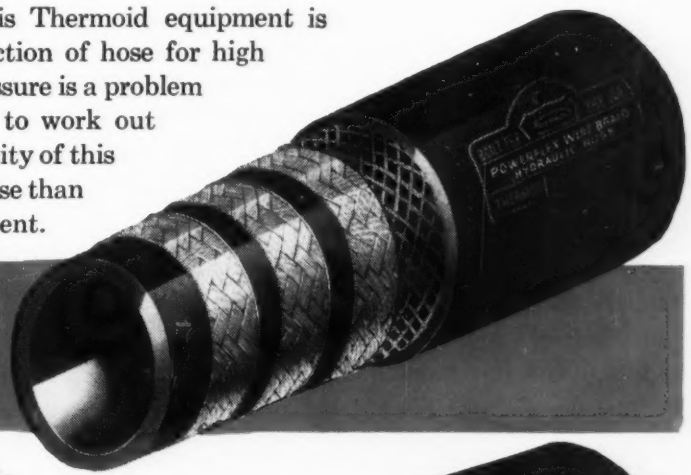
New Wire Braiding Equipment Produces Larger, Stronger Hose for High Pressures

The world's largest wire braiding machine specifically designed for the manufacture of hose is now in production at Thermoid's modern Nephi, Utah, plant. The possession of this equipment enables Thermoid to make wire braid hose in larger sizes and with greater strength than had previously been possible.

Hoses of 2, 3 or 4 braids can be made on this machine in sizes up to 2½" I.D. That means Thermoid can make hose that will rival pipe in strength but still have the flexibility of rubber. The specifications of Thermoid's hose for carrying high pressure are superior to any current production on the market.

If Pressure Is A Problem

In addition to the hoses specified below, this Thermoid equipment is available for special designs involving construction of hose for high pressure work. If you have a hose use where pressure is a problem give us the overall facts. We will undertake to work out a practical design that can use the unusual capacity of this machine to produce a stronger, more compact hose than could be made by any other method or equipment.



Powerflex Wire Braid Hydraulic Hose

Can now be produced in sizes from 3/16 to 2" I.D. in 50 ft. lengths, in 1, 2, 3 or 4 braids, working pressures from 500 to 5,000 lbs.

Powerflex Wire Braid Steam Hose

Practically burst-proof because of the wire braid reinforcing.

Recommended for pressures up to 200 lb. saturated steam. Specially compounded tube resists heat—asbestos cord layer dissipates heat and forms a permanent bond to the tough, rubber cover. Available in sizes ½ to 2½" I.D. and in lengths up to 50 ft.

The Thermoid line includes: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Custom Molded Products • Industrial Brake Linings and Friction Materials.

Thermoid

Thermoid Company • Main Offices and Factory • Trenton, N. J., U. S. A.
Western Offices and Factory • Nephi, Utah, U. S. A.
Automotive and Industrial Rubber Products • Friction Materials • Oil Field Products

"Give us the tools . . ."

For High Wages, Full Employment . . . Business Must Have Better Tools *and More Money to Pay for Them*

So far we have escaped the post-war depression predicted by leading government economists. How can we continue to frustrate gloomy prophets who see only depression ahead?

At the end of World War II the federal Director of Reconversion saw depression immediately ahead. He said we would have 6,000,000 unemployed four months after VJ-Day and 8,000,000 a few months later.

But we did not have depression. We did not because:

First, the American business man, sensing the obligations of a vastly more important post-war America, went ahead to build his plant and equipment to meet expanding domestic and world markets—markets bigger actually and potentially, in terms of world-wide trade and profits than any previously envisaged.

Second, the American businessman was able to get the money to go ahead. Since 1945 he has spent $50 billion building new plants and buying new equipment.

There may be other reasons why we missed a depression in 1946. But—make no mistake about it—what has powered our present prosperity is the $50 billion spent by businessmen since VJ-Day to improve their plants.

It provided jobs directly for 5 million people. It paid for more than half of our record-breaking steel output. It put in place the foundations of great new industries such as television. It strengthened the foundations of the chemical, machinery, plastics, steel and oil industries. It has expanded and improved our power systems throughout the country.

This spending has made the difference between prosperity and slump, between industrial strength and serious deterioration.

In fact, we know now that what business spends for new plants and new tools always makes the difference between prosperity and slump, the difference between national strength and weakness.

The accompanying chart tells the story. When we have spent heavily for new plants and equipment, we have had prosperity and strength. When we have not, we have been in trouble.

We would have been in trouble since VJ-Day except that business used its war reserves, plus two-thirds of its profits, plus borrowed money to improve and expand its facilities. This year industry is spending $19 billion this way.

Has this great post-war expansion actually made our economy a "mature economy"? Have we come now to the saturation point the New Dealers mistakenly said we had reached in the '30's?

The answer is no!

Proof of that answer is being developed through a McGraw-Hill national survey of "Business' Needs for New Plants and Equip-

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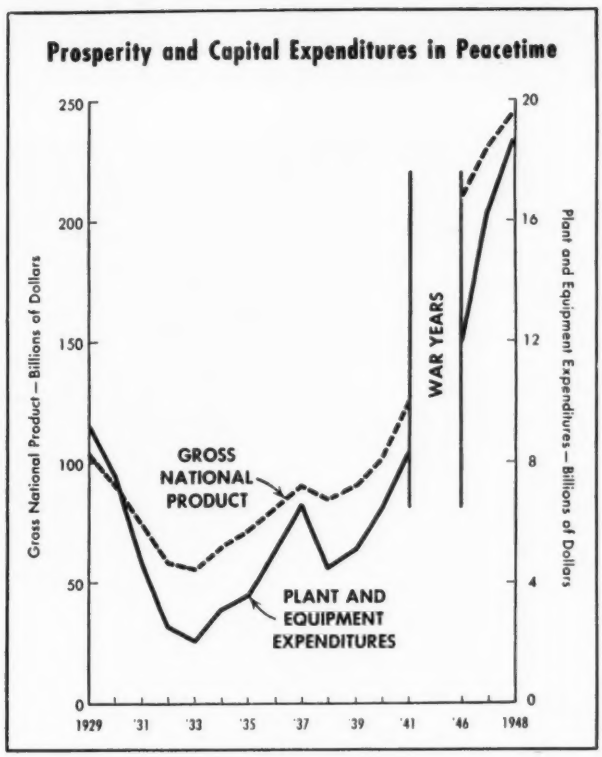


ment" details of which will be given in this editorial series in coming months.

We have a bigger nation, more people, to serve right here at home. Further we must meet human needs which the war created around the world. Also, we must sustain a world position such as this country never assumed before.

Here are immediate things crying to be done.

1. Business still needs billions to expand production because our country and our needs are growing rapidly. Example: To meet the demand for power, electric utility companies must nearly double their present generating capacity in 10 years. That will cost more than $7.5 billion. To fill increasing needs for oil and gasoline, oil companies must spend at least as much.

2. Business still needs billions to get its plants up to date and overcome wear and tear. Examples: Over half a million of our freight cars, a third of the total, are more than a quarter of a century old. About two-thirds of the looms in the textile industry are more than 20 years old. Half of our coke ovens, basic equipment for iron and steel production, are more than 20 years old, and only half as efficient as modern ovens.

3. Business still needs many billions to do new things in dramatic new ways. Example: Machinery that will cut out 80% of the dirty, dangerous work of mining soft coal has been perfected. A new automobile engine plant will reduce the work that goes into engine-building by three-quarters.

Hundreds of similar things that our scientists and engineers have developed could be cited. They can be found in every industry. They hold immeasurable promise of adding to the abundance of American living. In fact, there is hardly a step along the whole route of industry — from roughing out raw materials to delivering finished goods — where there are not new and better ways of doing things standing ready for general use.

But the crucial question now is: Where is the money coming from to put to work these new and better ways of doing things?

Business has used its own resources so far . . . profits and reserves. The stock market, where industry traditionally has raised money from people willing to risk their savings, has been limping along, giving business no chance to get enough money on satisfactory terms. *Business now must look primarily to its own earnings for the money to carry out the improvements which are necessary if America is to keep itself strong and efficient.* The next editorial in this series will deal with this new and crucially-important role of profits.

But business can not count on profits alone to do the job. Profits are too uncertain.

From now on finding the money . . . to put new ideas and new equipment to work . . . to go ahead with the expansion and improvement that will thwart depression and build industrial strength *. . . calls for the support of all Americans everywhere.*

This comes right down to *you . . . for at stake is your chance for steady work, for better pay, for new things like television, and for more of the every-day things, like coal and clothing, of better quality and at less cost.*

By helping business get new and better tools, you will help yourself — and you will help build a more sound, more prosperous, better America.

James H. McGraw, Jr.

President, McGraw-Hill Publishing Company, Inc.

Threadless Fittings for Refrigeration Piping

THANKS to the new Flagg-Flow threadless pipe fittings, contractors recently accomplished the almost impossible feat of laying 13 mi. of concealed refrigeration piping in four weeks at Madison Square Garden. Made by Stanley G. Flagg Co., Inc. of Philadelphia, the threadless all female joints are slightly tapered. Wrought iron piping to be connected by these joints is cut down to a driving fit. All connections are made by silver brazing.

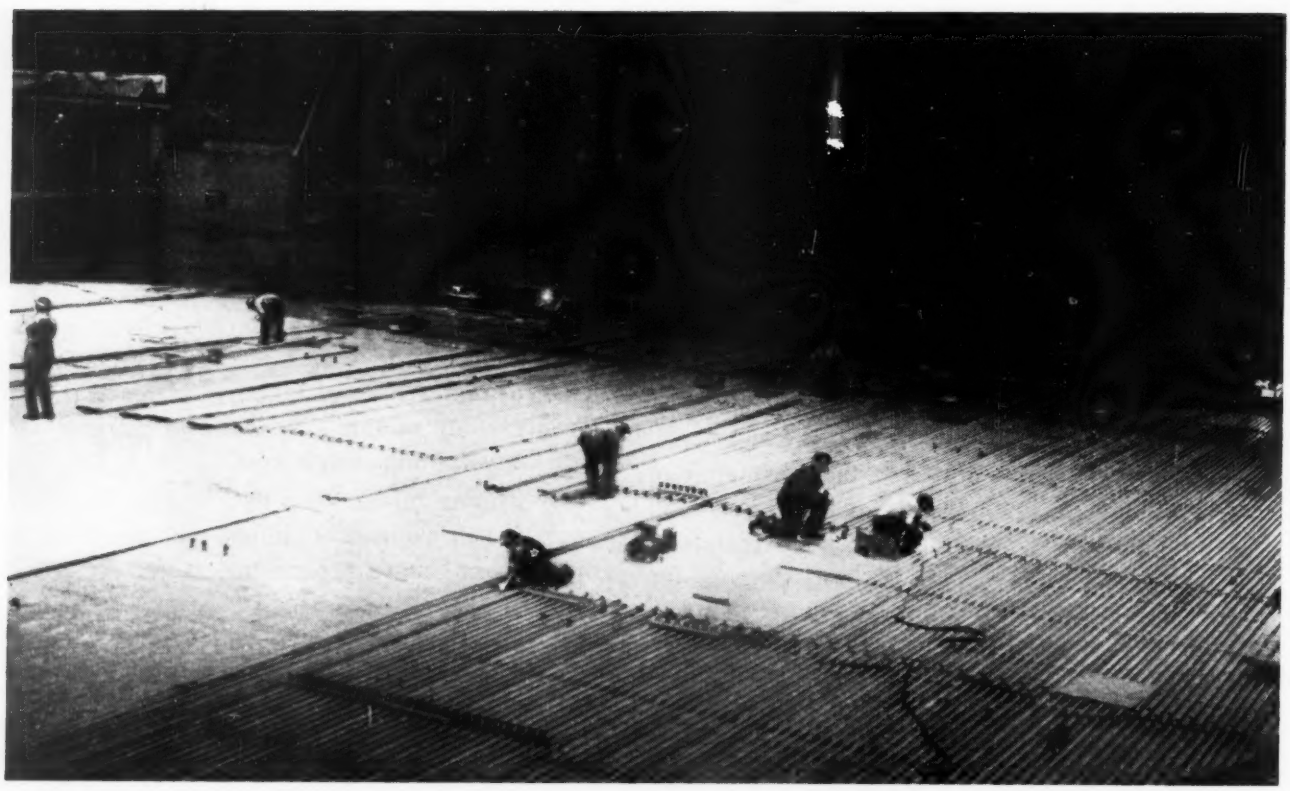
Designed to stand hydrostatic tests of 2,500 psi. and 300-lb. air pressure, the 1¼-in. pipe, pre-joined at the shop in 20- and 40-ft. lengths, was laid on the original base of the arena floor.

Before shipment to the arena, joints were covered with soapy water and subjected to 100-lb. air test. These "suds" tests were continued throughout the project. Only 181 leakers out of 6,000 fittings were detected. A majority of these were joints prefabricated at the shop and are believed to have been weakened during handling.

The pipes were secured on 2-in. supports and a 3½-in. base of concrete was poured on the arena floor. Wire mesh was embedded in this to form a bond for a ¾-in. terrazzo bed. Next the bed coat was poured and finally the ¾-in. terrazzo top, burying the pipe 1½ in. below the finished floor. Final step was the application of a sealing compound.

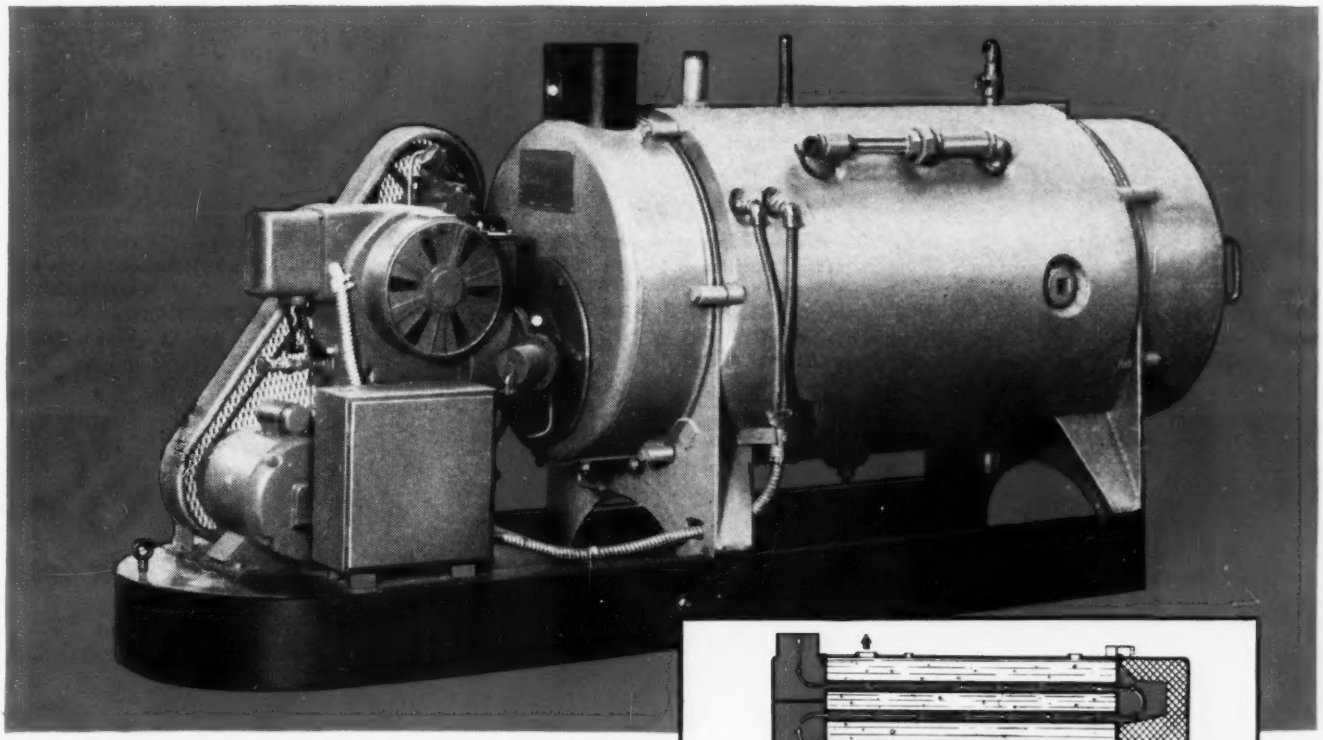
Installation was by Almirall and Co., New York, with the firm of Charles S. Leopold of Philadelphia, consulting engineers. Pipe was supplied by A. M Byers Co. of Pittsburgh.

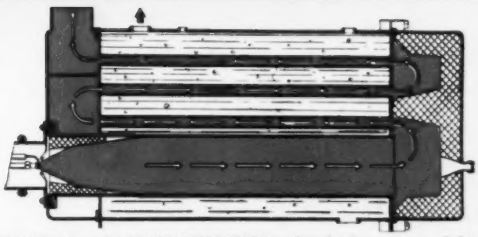
THREADLESS FLAG-FLOW COUPLINGS composed of two female connections are soldered to refrigeration piping with silver alloy. Hot liquid solder seeps into joints making tight leakproof connections.



PRE-CONNECTED 40-ft. lengths of wrought-iron refrigeration piping for Madison Square Garden skating rink are joined by 20-ft. pipe in middle of arena. Some 3,000 fittings were used to connect 70,000 ft. of pipe.

ANNOUNCING the new CLEAVER-BROOKS
High Capacity Industrial Hot-Water Generator





EXCLUSIVE 4-PASS CONSTRUCTION—The high rating and high efficiency (better than 80%) are due to the four-pass, horizontal fire tube construction, combined with a forced-draft burner.

Now a "PACKAGED" unit expressly engineered to deliver hot water in quantity at High Speed

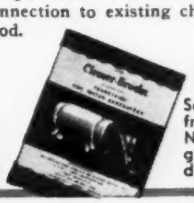
Here's the answer to your industrial hot water needs. The new Cleaver-Brooks hot water generators are complete packaged units — ready to go the moment they're installed. They're instantaneous and completely automatic. You have your choice of either oil or gas fired models.

These new units are available in 665 G.P.H. or 875 G.P.H. at 100° F. temperature rise. No storage tank is required up to rated output. A.S.M.E. code construction throughout.

CLEAVER-BROOKS COMPANY
387 E. Keefe Avenue • Milwaukee 12, Wisconsin

- CENTRALIZED AND ENCLOSED CONTROLS—All controls in a closed cabinet for easy accessibility and protection.
- FLAME SAFETY CONTROL—Heavy duty industrial type safety controls provide instantaneous shut-down in the event of flame failure.
- DUAL HOT WATER CONTROLS—One for normal operation, the second to automatically shut off the generator in the event of excessive water temperature.
- EASY HANDLING — Front end of base, including burner can be easily removed for separate handling.
- INSPECTION AND CLEANOUT—Easily removed burner, three handholes and hinged rear door provide ample inspection and cleanout openings. A liberal sized drain opening is also provided.
- INSULATION—Thick insulation jacket, completely encasing hot dipped galvanized shell, saves fuel.
- INLET MIXER TEMPERS WATER—The tempered water is forced by baffles so as to induce thorough circulation in all parts of the heater.
- NO DRAFT HOOD IS REQUIRED—Pressure burner permits small diameter vent connection to existing chimney and eliminates need for draft hood.

Cleaver-Brooks



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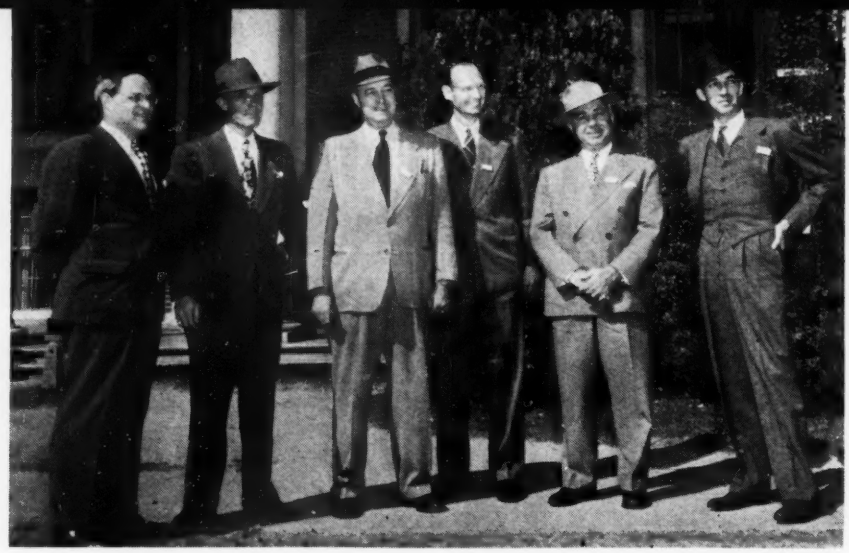
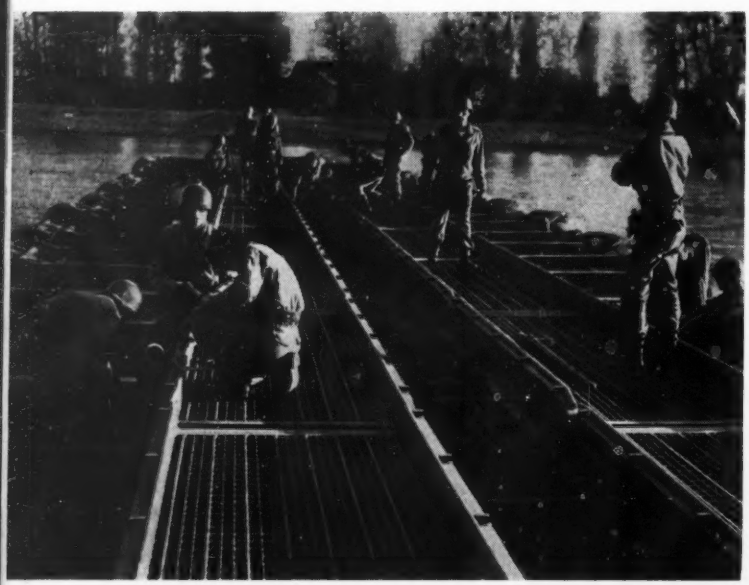
BUILDERS OF EQUIPMENT FOR THE GENERATION AND UTILIZATION OF HEAT



CONTRACTORS participate in an open forum discussion of "Engineers in Construction" at recent meeting of Mid-South Section, A.S.C.E., held at University of Mississippi. Here they are (l. to r.): E. E. WHITE, Spencer, White & Prentis; B. J. FRY, E. J. Albrecht Co.; JAMES T. DENTON, Merrit-Chapman & Scott Corp.; DEAN LEE H. JOHNSON, Chairman of session; DWIGHT W. WINKELMAN, president of A. G. C.; and NELLO L. TEER, JR., Nello L. Teer & Co.



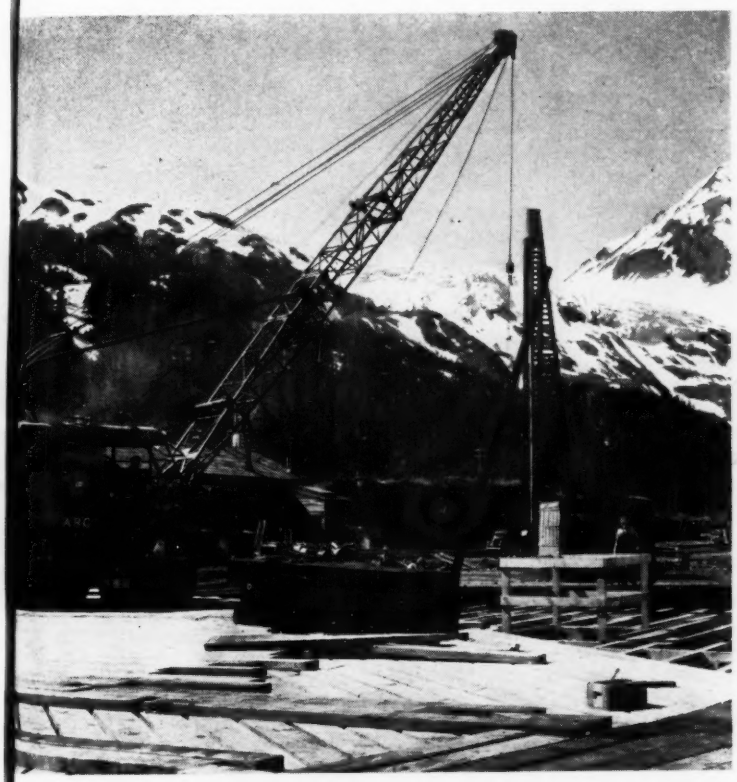
RIVER RHINE CROSSING between Rheinhausen and Speyer, Germany, is made with pontoon bridge built by members of U. S. 1st Engineer Combat Battalion stationed at Darmstadt, Germany. Structure 480 ft. long is said to have been completed in 6¼ hr. —Wide World photo

RAZING "EL"—Workmen use cutting torches to demolish 54-yr.-old elevated railway spur in Chicago to make way for Wacker Drive superhighway. One-quarter mile line, known as Market St. Stub, ran between Lake and Madison Sts. on Wacker Drive.—Wide World photo

MOST BEAUTIFUL BRIDGE selected for American Institute of Steel Construction's award for Class I (spans of 400 ft. or more) is Julien Dubuque Bridge (below), across the Mississippi River at Dubuque, Iowa. Opened to traffic in 1943, bridge has span of 845 ft., cost $3,175,000, was designed by Howard, Needles, Tammen & Bergendoff, New York consulting engineers. Steel was fabricated by Bethlehem Steel Co.

ATOMIC ENERGY LABORATORY at Upton, L.I., New York has reached construction stage of installing pile of graphite blocks here being examined by WELLS N. THOMPSON (left) vice-president, of H. K. Ferguson Co., contractor for project, and WILBUR E. KELLEY, manager of New York operations for U. S. Atomic Energy Commission.

FIRST ANNUAL Construction Industries Exposition held at Houston, Tex., Oct. 2-10, was a big success. Attendance totaled 334,297, more than half attending morning sessions set aside exclusively for persons connected with construction. Exposition, combining a Home Show with an outdoor Construction Equipment Show, was sponsored by Houston Chapter, Associated General Contractors of America, under direction of Loy Duddlesten, Executive Secretary. It will be repeated next October.

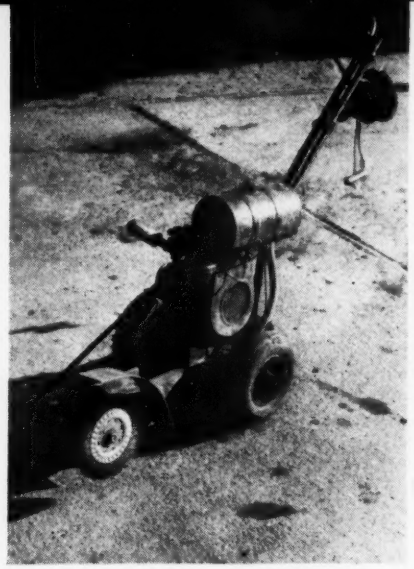


ALASKAN DOCK CONSTRUCTION at U. S. Army base at Whittier is carried on by Morrison-Knudsen Co., Inc., contractor of Boise, Idaho. Contract called for building wharf and warehouse at cost of $1,700,000. New dock is large enough to berth three ocean-going freighters and barge. Project involved driving 178,000 lin. ft. of wood piling. Contractor's forces were directed by E. H. Elwin, superintendent.

GROUND-BREAKING CEREMONIES for $6,343,650 Morgantown lock and dam on Monongahela River in West Virginia, called for spade work by representatives of U. S. Corps of Engineers, members of Congress from West Virginia and superintendent in charge of work for Dravo Corp., Pittsburgh, Pa., contractor. Shown in photograph are (left to right): ORVAL AUHL, Dravo Corp., general superintendent; COL. F. H. FALKNER, U. S. District Engineer at Pittsburgh; GEN. J. C. MEHAFFEY, U. S. Division Engineer at Cincinnati; U. S. REPRESENTATIVE MELVIN C. SNYDER and U. S. SENATOR CHAPMAN REVERCOMB, both of West Virginia.

RUBBER PAVEMENT is applied to resurface Exchange St. in Akron, Ohio. Paving mixture consists of powdered synthetic rubber, supplied by Goodyear Tire and Rubber Co., asphalt and crushed stone. Among advantages claimed for "rubber" pavement are: waterproof surface, resiliency, resistance to cracking in cold weather, durability and skid resistance.—Acme photo

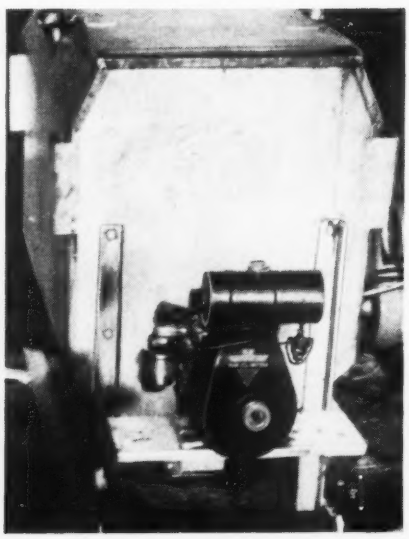
1 . . . First, joints are cleaned with power chisel . . .
Two-man, hydraulically-controlled chisel plow cleans joints of heavy cohesive material. One man walks behind, operating power unit, while the other, on bicycle seat, works chisel.



2 . . . Followed by rotary brushing . . .
Power-operated rotary wire brush cleans out loose material in joints.

New Equipment Seals Runway Joints

3 . . . And cleaning with hot air jet . . .
Compressed air heated by kerosene blow torch blows out loose material, dries joint, and softens old sealing material. Pressure through hose connected to compressor.



4 . . . Ready for hot sealing compound . . .
Rubber-type sealing compound is heated, maintained between 350-400 deg. F. in thermostatically controlled, oil-jacketed, heating tank.

FIVE SPECIAL, but simple, tools were devised by the contractors at the Atlanta (Ga.) Naval Air Station to clean and pour more than 10 mi. of joints in the concrete runways with hot rubber-type sealing compound. The rigs and their application are shown in the accompanying photographs furnished by the Portland Cement Association from its 1948 Summer issue of "Concrete Highways."

Contract for cleaning and pouring the joints was let to Ledbetter-Johnson Co., Rome, Ga., for 7c. per lin. ft. The sealing was done by Maintenance Service, Inc., Westport, Conn., as subcontractor. Lt. Cmdr. M. L. Lanzoni was officer in charge of construction for the Navy.

5 . . . Poured into applicator . . .
Sealing material (below) is poured from heating tank into 100-lb. capacity pressure-type applicator jacketed with oil.

6 . . . Sealing flows into joints . . .
Actual pouring is one-man operation (below) with operator walking backwards, pulling applicator.

7 . . . Through valve regulator.
Controlled stream of hot rubber-type sealing material (below) enters joint under pressure of 9 psi.

ALL-WEATHER

TRUCK TRACKS

ECONOMICAL . . .
Amazing low price puts TRUCK TRACKS within the reach of every truck owner.

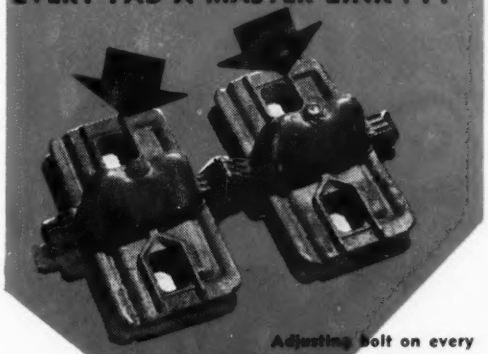
$235 Tandem Axle set

$120 Single Axle set

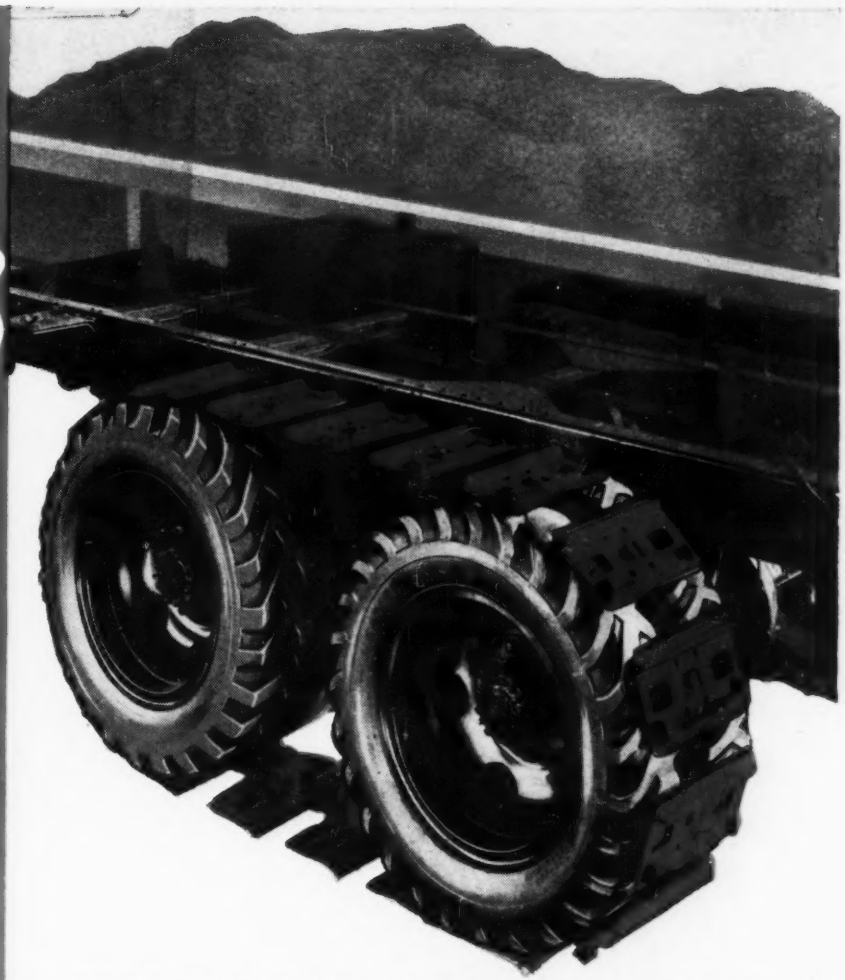
PROVEN . . .
Outstanding performance in mud, sand and snow for the past 6 years!

VERSATILE . . .
Super traction for single as well as tandem axle trucks. Fit almost all standard rear duals.

EVERY PAD A MASTER LINK . . .



Adjusting bolt on every pad assures perfect fit, perfect track tension.



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Beat the Mud and Snow this winter . . . mount TRUCK TRACKS on your rolling equipment. TRUCK TRACKS can eliminate seasonal shutdowns on the job by adding *tractor performance* to your trucks. Ideal for desert operations the year 'round.

Drivers mount TRUCK TRACKS in 10 minutes time; remove them in less. Adjustments are simple and easy to make. Nothing to break, bend or loosen . . . maintenance is negligible.

TRUCK TRACKS are easy to order, too! Just send tire size; whether single or tandem axle. Accompany order with a check for $50.00 per set, and your TRUCK TRACKS will be shipped C.O.D. the day your order is received.

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☐ Please ship C.O.D. immediately:

_____Sets of TRUCK TRACKS for Single Tandem axle _____x_____tire size.

(Check for $50.00 per set deposit enclosed.)

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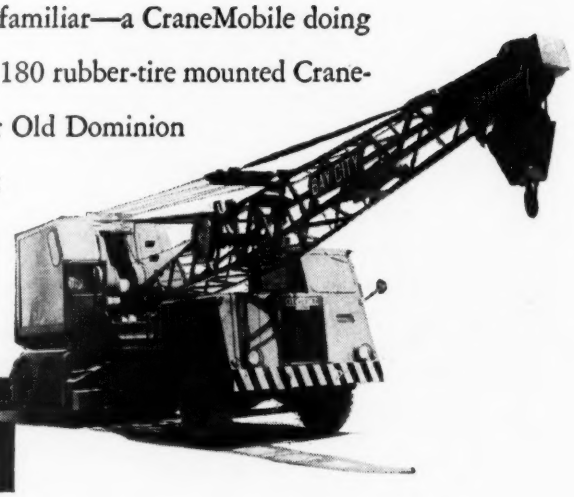
Big Job Made Easier

with a BAY CITY CRANEMOBILE

Here's a sight that is becoming more and more familiar—a CraneMobile doing a fast, efficient job on steel erection. This model 180 rubber-tire mounted CraneMobile having a 20-ton capacity, is working for Old Dominion Hoisting Service on the Pan-American Annex in Washington, D. C.



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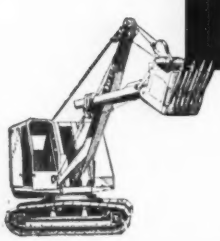
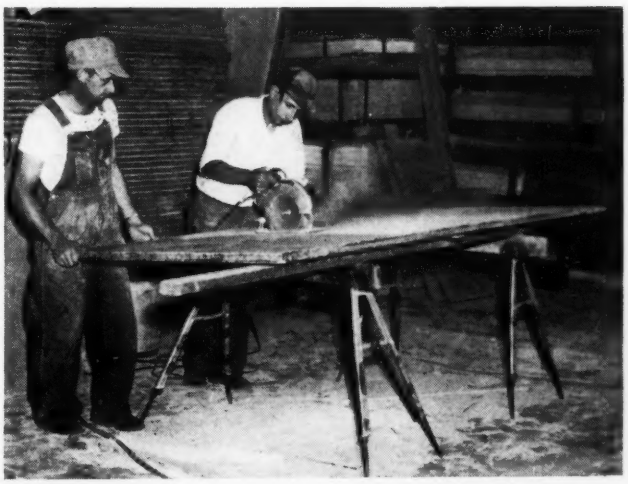
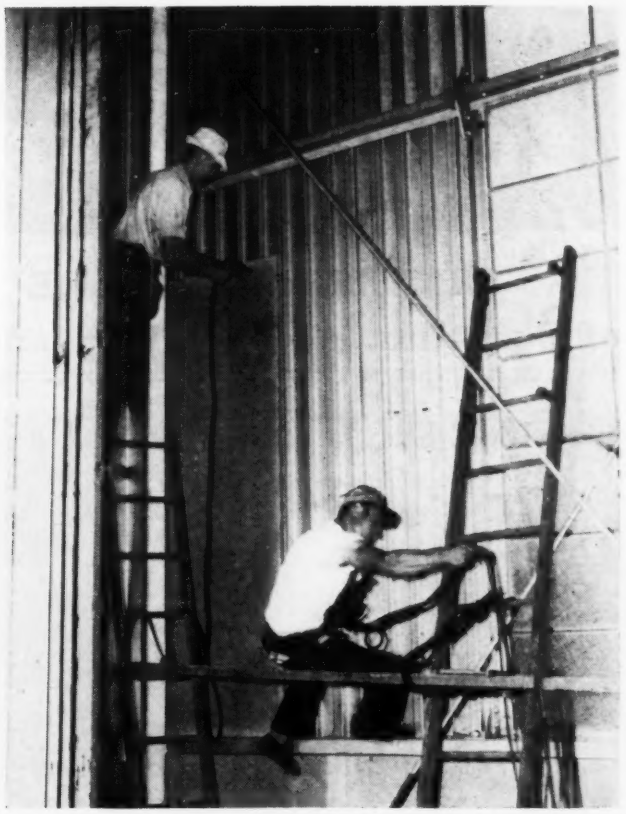


Welded Studs Cut Insulation Cost



FIRST STAGE of conversion is cutting Carey Thermobord panels to size with power saw. Insulation board is 1-in. fiberboard core inclosed in 1/8-in. asbestos covering.



AFTER INSULATION BOARD is lifted into place, holes are drilled in line with Q-panel ribs, through which studs are welded. Man below prepares Nelson Automatic Stud welding gun which will fasten insulation to Q-panel with zinc die-cast stud.

BY STUD WELDING Carey Thermobord insulation to 18-gage Q-panel sides, A. Nabaskowski Co. of Amherst cut erection costs more than 40 percent when insulating the shipping building at the Fruehauf Trailer Company's Avon, Ohio plant for use as a manufacturing department.

Cost of revamping this 120x66x30-ft. building with insulated Q-panel wall would have been prohibitive, so the management decided to install asbestos cement covered structural insulating board.

Elimination of Q-panel drilling operations and exterior scaffolding in the upper wall areas by use of stud welding accounted for the largest part of the $3,000 saved on the job.

Carey Thermobord is composed of a 1-in. fiberboard core sandwiched between 1/8-in. sheets of asbestos. Raised into position and pre-drilled, it was fastened to the Q-panel with 1-in. studs by a Nelson Automatic Stud Welding Machine.

Insulating panels were secured by a special zinc die-cast nut and flat lead washer designed for asbestos covered insulating board. The joints between panels were then sealed with batten strips pre-drilled on the ground and secured by PK screws.

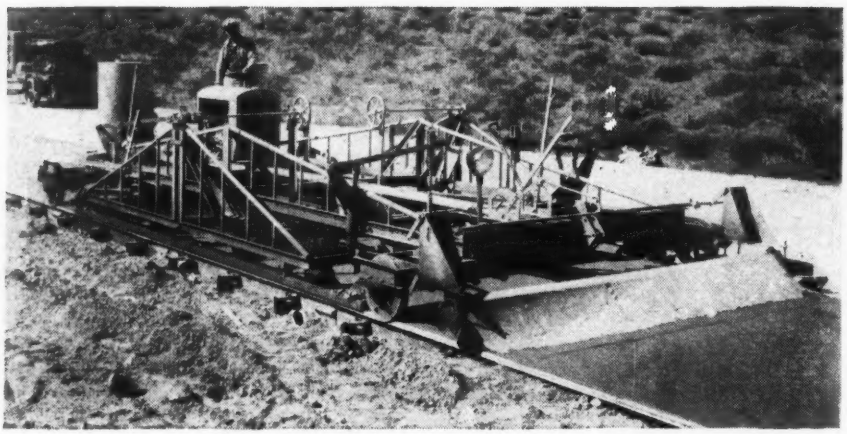
This method cost approximately $30 per square as compared with an estimated $53 by any other method.

LIGHT WELDING GUN makes overhead work relatively simple. With all insulation on inside costly exterior scaffolding is eliminated.

FINAL OPERATION on insulation job is installation of asbestos cement batten strips over panel joints. PK screws, driven through pre-bored holes, fasten batten to Thermobord. Zinc welding studs can be seen at top and bottom of panel.

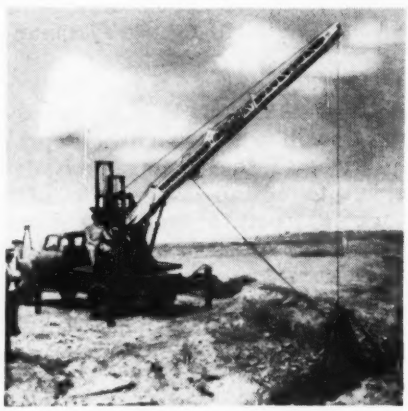
CONSTRUCTION EQUIPMENT NEWS

DECEMBER 1948 REVIEW
of Construction Machinery and Materials



FLOAT FINISHER — For several years, the Johnson float finisher, pictured above, has been standard equipment with many western highway contractors. Patents for this machine have been acquired by the Madsen Iron Works and it will be known hereafter as the Madsen-built Johnson float finisher.—**Madsen Iron Works, Huntington Park, Calif.**

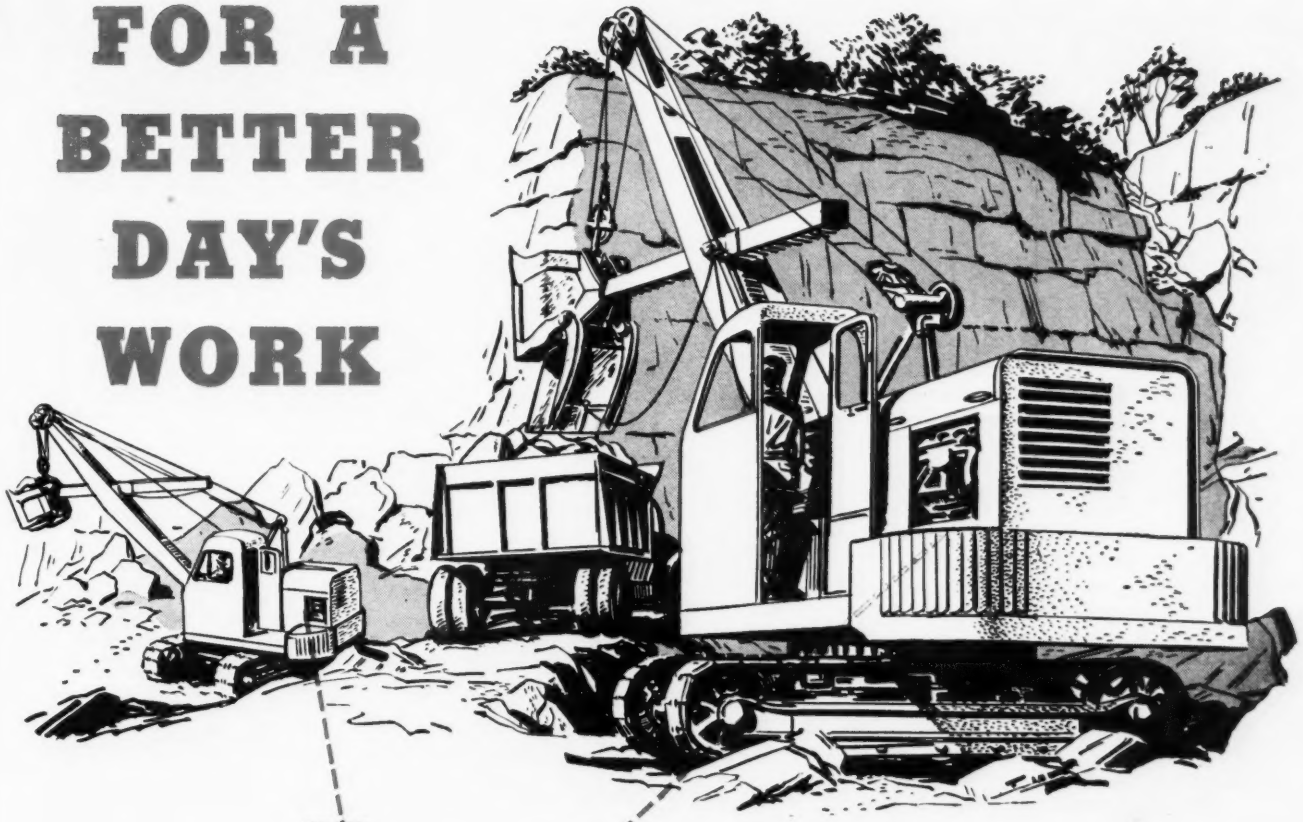
BEAD-LOOSENING TOOL — Will exert a concentrated pressure up to 10,000 lb. per sq.in. and make possible on-the-job changes of giant earth-mover pneumatic tires. New tool is adjustable for use on 20- to 33-in. rim sizes. Using bead-loosening tool, one man can easily force steel fingers between tire bead and rim flange by a long lever arm. A mechanical screw, operated by ratchet lever, then exerts up to 5 tons of pressure on the bead through the tapered fingers to force the bead away from the bead seat. Operated in either horizontal or vertical position.—**Firestone Tire & Rubber Co., Akron, O.**



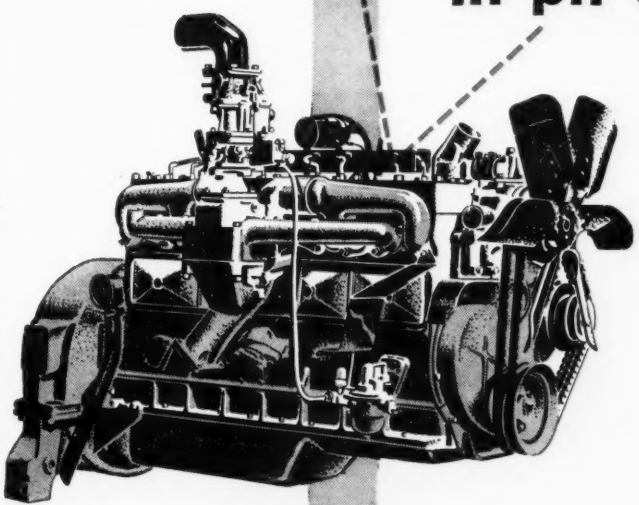
HYDROCRANE—New model of Hydrocrane has 3-ton capacity. Full hydraulic operation powered by truck engine eliminates shafts, drums, gears, clutches, brakes, chains and sprockets. Functions include closing action of ⅜-yd. clamshell bucket and 370-deg. swing. Crane is factory-mounted on new motor truck for fast highway travel. Equipped with hydraulic outriggers. All-welded box section latticed boom raises, lowers and telescopes (from 18 to 26 ft.) hydraulically. This feature make possible fast, accurate spotting of loads and enables operator to reach into box cars, over walls or piling or into buildings. Weight of crane without truck is 9,375 lb. For truck-mounted unit over-all length in the traveling position is 24 ft. 6 in. and over-all height is 10 ft. 6 in. Truck engine provides all power necessary to operate Hydrocrane. Line shaft extending back through truck chassis from power take-off on transmission drives hydraulic pumps in crane sub-base. Fluid is piped directly to individual crane-controlling hydraulic rams. Standard machines are provided with two vertical hoist rams. Boom hoist is independent of line hoist and swing. Special bumper valve makes possible adjustments for maximum speed of boom lowering. Swing is controlled by hydraulic rams.—**Bucyrus-Erie Co., So. Milwaukee, Wis.**

VERTICAL AIR COMPRESSOR developed by designing the unit with the tank upright and the motor and air compressor unit mounted on top. Available in three models: 25-V which has a 20-gal. tank with a 1½-cu.ft. per min. air displacement; 50-V which has a 30-gal. tank and displaces 4.07 cu.ft. of air per min.; 75-V with a 30-gal. tank that displaces 2.7 cu.ft. of air per min. Model 25-V requires only 20-in. dia. of floor space and the other two models require only 24-in. dia. All three units are equipped with a single phase motor that operates on either 110 or 220-V Model 25-V has a ½-hp. motor, the 50-V a ½-hp. motor, and the 75-V a ¾-hp. motor. Made from high quality steel with electric welded construction, they have withstood a 400-lb. hydrostatic test and have a 200-lb. working pressure. Each is equipped with an automatic pop-off valve and adjustable automatic switch.—**The Grimes Co., Dallas, Tex.**

FOR A BETTER DAY'S WORK



in pit and quarry operations



● Where digging is tough and tricky . . . where steady, dependable power is the difference between profit and loss . . . you'll find Chrysler Industrial Engines and Power Units on the job! Chrysler Industrial Engines provide power *for a better day's work* on cranes, shovels, pumps, cableways, conveyors, drills, crushers and in other mining or quarrying equipment. For economical power that's tailored to *every* industrial application, see the Chrysler Industrial Engine dealer near you; for detailed data and specifications, write . . .

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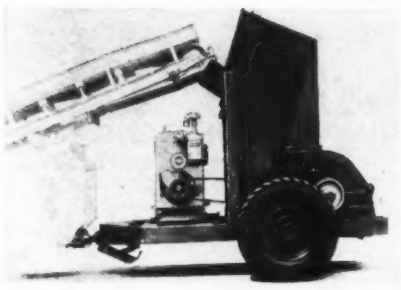
CHRYSLER

INDUSTRIAL ENGINES AND POWER UNITS

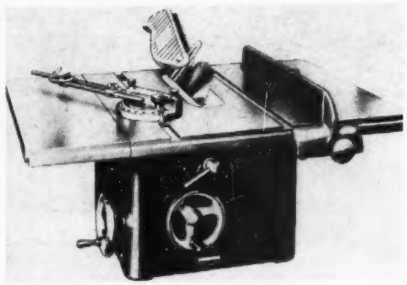
HORSEPOWER WITH A PEDIGREE

REAR-DUMP ROCK WAGON—Designed for loading by power shovel or dragline, the Tournarocker, powered by 150-hp. Model C Tournapull, has a struck capacity of 16.5 cu.yd. or 16 tons. Wide top opening and low (6½ ft.) body permit easy spotting at shovel. Positive power electric steering plus a 90-deg. turning radius enable wagon to turn in a 12½-ft. radius. Load is carried down between the wheels, giving a low center of gravity for great stability. Dumps material behind rear tires by locking brakes on rear wheels at edge of dump and raising bowl by cable from electric motor. Forward speeds range from 2.19 to 17.3 mph. and reverse speeds from 2.19 to 4.38 mph. Wagon is mounted on 21x25 tapered bead tires. Principal dimensions are: over-all length 26 ft. 1 in., over-all width, 9 ft., 8½ in., wheelbase, 15 ft. 3 in. Weight is 28,500 lb.—**R. G. LeTourneau, Inc., Peoria, Ill.**

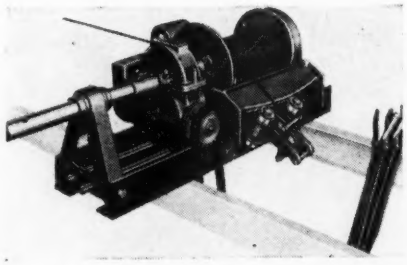
PAINT REMOVER—Extremely slow evaporation makes a new paint remover, Kelite Paint Lift, penetrate paint more thoroughly and get paint off faster. The new product is safe on all metals, including aluminum, iron, tin, and magnesium. It contains no phenolic compounds, and it cannot blister skin. It is non-toxic, non-corrosive, and non-flammable.—**Kelite Products, Inc., Box 2917, Terminal Annex, Los Angeles 54, Calif.**



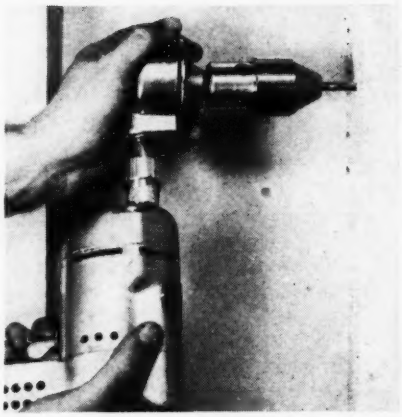
PORTABLE CRUSHING UNIT—Designed for towing behind an Athey force-feed loader for reclaiming highway pavements, picks up scarified or broken material from road, crushes it and deposits it back on the roadway in one continuous operation. Unit consists of impact mill powered by Caterpillar diesel engine mounted on two-wheeled, rubber-tired trailer. A multiple V-belt drive connects engine with mill. Crusher hopper is fitted with breaker bars which pulverize material and deflect it on to a grid preventing fines from entering mill. Over-all length of unit is 13½ ft., width 94 in., and height 11½ ft. Shipping weight is approximately 14,000 lb. — **Athey Products Corp., Chicago Ill.**



TILTING ARBOR SAW—Constructed of cast iron precision-ground, table measures 18x25-in. and has removable insert. Saw with 8-in. blade tilts to full 45-deg. and gives maximum 2⅝-in. cut. Miter gage with 24-in. extension arm and a special motor mount are included. Saw blade is 7 in. from front of table. The ⅝-in.-dia. spindle has sealed-for-life ball bearings. New and improved rip fence is adaptable either to right or left hand. Recommended speed, 3,000 rpm. Shipping weight, 20 lb. Angle or tilt and depth of cut are positively controlled by easy acting hand-wheels.—**Foster Mfg. Co., 1 Kinsey Ave., Buffalo 17, N. Y.**

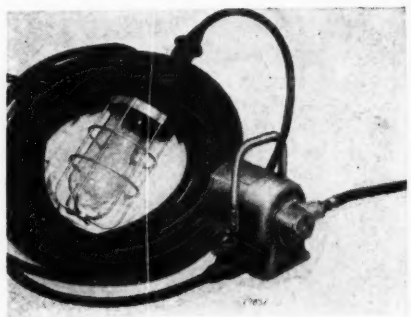


TRUCK WINCH—A spooling and tensioning device eliminates cable damage or breakage from loose and crossed coils in the Reel-Rite truck winch. The spooling unit is not mechanically linked to the winch drive, so it automatically compensates for any change in rope diameter, speed or wear. Winch also has detachable back draft clutch, heat treated alloy steel shafts, ball bearing mounted worm, automatic safety brake and patented flexible suspension. Capacity is 20,000 lb.—**Gar Wood Industries, Inc., Findlay Div., Findlay, Ohio.**



ANGLE-HEAD DRILL ATTACHMENT—Enables electric drill to operate in hard-to-reach places not accessible by direct drilling. Specially designed ½-in. Jacobs chuck fits bull buffer which in turn fits chuck of any electric drill. Bull buffer's gear reduction adds power to drill and reduces speed.—**F. N. Bertram Engineering Co., 3121 Main St., Kansas City, Mo.**

CIRCULAR SLIDE RULE of durable laminated plastic, for use by engineers, draftsmen, machinists and others, will perform the following computations: Multiplication, division, finding squares or square roots, cubes or cube roots, reciprocals and proportions. Printed on a disk 4¼ in. and small enough to be carried easily in the pocket, this rule is said to give only slightly less accuracy than rules costing ten to twenty times as much. Instructions are intended to be understood easily by anyone having a slight knowledge of mathematics.—**Allegheny Plastics, Inc., 329 Chestnut Rd., Sewickley, Pa.**

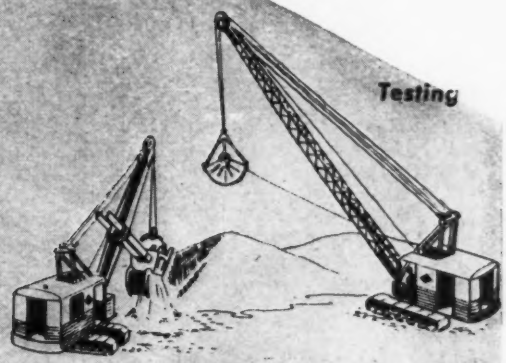


AIR-POWERED GENERATOR—Providing ample power to operate two 75-watt, 115-v. bulbs without need for temporary electric lines, Airlite generator cannot be harmed by short circuit or overload. Powered by an air compressor, generator weighs 8¾ lb. and measures 7¼x5x5 in. without handle. Both 115- and 220-v. models are available—**Ingersoll-Rand Co., Phillipsburg, N. J.**

LIMA

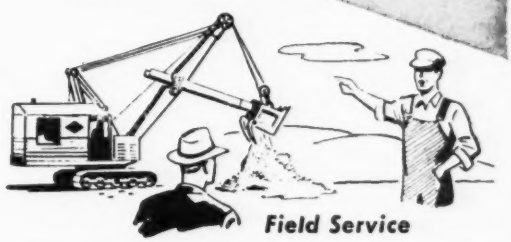
helps you keep your LIMA equipment ON THE JOB!

Design Engineering



Testing

Service Bulletins



Field Service

We, at LIMA, recognize how important it is to our customers to keep equipment operating continuously. We know that in most cases shovel or crane failure "shuts down the works". That's why we have established a hard and fast policy of doing everything we can to *make LIMA equipment STAY ON THE JOB!*

FIRST, our engineers have designed a machine with extra ruggedness and stamina to take the punishment they know it will get. Capacities are achieved by proper design and rugged construction rather than by adding dead counterweight. Many exclusive features are built in to provide greater endurance. Each machine is subjected to gruelling tests on our own proving ground before shipment.

SECOND, we assume the obligation of providing our customers and their operators with complete instructions as to proper handling and maintenance.

THIRD, we take a keen personal interest in every machine sold. Our agents and service engineers are always at your service—to keep your equipment at top efficiency *on the job*. Orders for maintenance parts get the green light in our shipping department—and are dispatched the same day whenever possible. We are as concerned as you are to keep your "down-time" to a minimum.

The LIMA line includes: SHOVELS—¼ to 6 yds. CRANES—13 to 100 tons—DRAGLINES—Variable

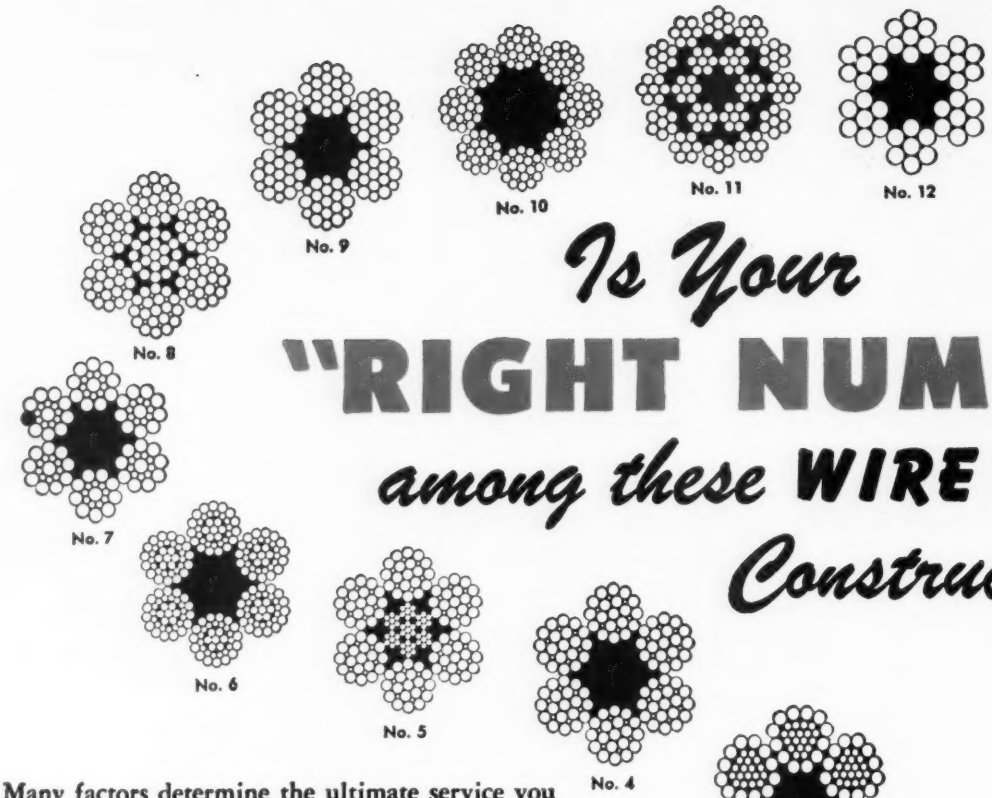
LIMA Type 802 shovel with 24'-6" boom and 2 cubic yard dipper excavating rock

Lima Shovel and Crane Division

LIMA, OHIO

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

LIMA HAMILTON CORPORATION



Is Your "RIGHT NUMBER" among these WIRE ROPE Constructions?

Many factors determine the ultimate service you may expect from a Wire Rope. Among these are size, grade, construction and quality. But equally important is selecting the correct combination of these and other vital factors. Unless a rope fits the particular job to be done, the best results will not be had.

As "HERCULES" (Red Strand) Wire Rope is made in a wide range of both Round Strand and Flattened Strand constructions—Preformed and Non-Preformed—it offers the 'right number' for *any* heavy duty job.

And our Engineering Department is always ready to help you select the rope that will give you the most service for each dollar of its cost. Call on us anytime.

No. 1—Style B Flattened Strand—Hemp Center
No. 2—6 x 41 Round Strand—Metallic Core
No. 3—Style G Flattened Strand—Hemp Center
No. 4—6 x 19 Filler Wire Round Strand—Hemp Center
No. 5—6 x 19 Filler Wire Round Strand—Wire Rope Center
No. 6—6 x 37 Round Strand—Hemp Center
No. 7—6 x 19 Seale Round Strand—Hemp Center
No. 8—6 x 19 Round Strand—Metallic Core
No. 9—6 x 19 Warrington Round Strand—Hemp Center
No. 10—8 x 19 Filler Wire Round Strand—Hemp Center
No. 11—18 x 7 Non-Rotating
No. 12—6 x 7 Round Strand Haulage Rope—Hemp Center.

All of these constructions are available either Preformed or Non-Preformed.

Use PREFORMED for Easier Handling and Smoother Spooling

"HERCULES" (RED STRAND) *the* DEPENDABLE WIRE ROPE *for any* TOUGH JOB
® REG U.S. PAT. OFF.

Use PREFORMED for Longer Life and Greater Economy

MADE ONLY BY

A. LESCHEN & SONS ROPE CO.

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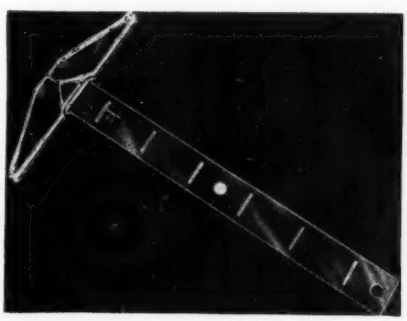
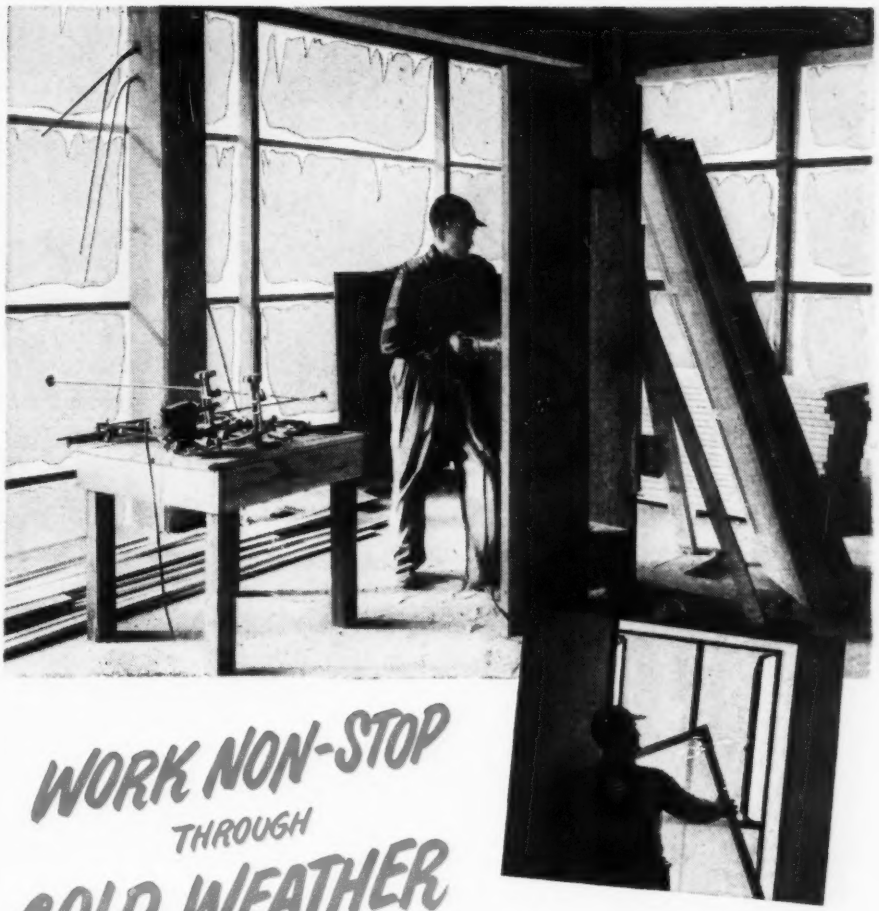
NEW YORK 6 • CHICAGO 7 • HOUSTON 3 • DENVER 2
LOS ANGELES 21 • SAN FRANCISCO 7 • PORTLAND 9 • SEATTLE 4

TWO ARC WELDING MACHINES —Alternating current units, of the transformer type, available in 150-, 200-, 300-, 400- and 500-amp. capacities, provide instant plug-in, plug-out of electrode leads by taper-type connector. Features include built-in power-factor corrector; fingertip, stepless current control; fan-forced ventilation; wide current range and moderate open-circuit voltage operation. Direct current models have a one-dial simplified control panel which carries a series of well-marked outlets, each one for an electrode of different diameter. Operator plugs into proper outlet, then dials for any required minor adjustments in current. Motor-driven dc. units are available in 150-, 200-, 300-, 400-amp. capacities in new compact 3,600 rpm. model and in conventional 1,750 rpm. type. Engine-driven welders include 200-amp. units powered by air-cooled Wisconsin engines, and 300- and 400-amp. sets driven by Chrysler industrial engines.—**Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.**



TRANSPARENT T-SQUARE — Instrumaster molded in one integral piece of shatter-proof transparent plastic gives complete view of working area beneath it, thus reducing possibility of smudging drafting work. Because instrument is in one piece, instead of having head attached to shank by screws, it remains 100 percent accurate even if dropped. Both sides of T-Square are equally usable. Shank has transverse ribs protruding 0.020 in. to enable T-square to be moved across working surface smoothly and to minimize chance of smearing ink. Available in two blade lengths, 18 and 24 in.—**Instrumaster Industries, 2456-132 W. Jackson Boulevard, Chicago 12, Ill.**



WORK NON-STOP THROUGH COLD WEATHER

with temporary enclosures of

VIMLITE*

CELANESE* PLASTIC GLAZING

Celanese Vimlite—tough flexible plastic glazing—stapled to window openings or fitted wood frames produces a weather-tight, brightly lighted interior.

With Vimlite temporary enclosures, contractors can work right through the coldest weather. Vimlite holds heat in, keeps cold out.

USE VIMLITE OVER AND OVER

Vimlite is wire reinforced and long lasting . . . can be used over and over . . . pays for its cost in no time . . . means better work and fewer man hours lost.

You can get Vimlite in 28" and 36" wide rolls—up to 100′ long. If your hardware dealer or building materials supplier can not supply you return the coupon below.

*Reg. U. S. Pat. Off.

Celanese Corporation of America, Dept. J,
180 Madison Avenue, New York 16, N. Y.

Please tell me where I can obtain Vimlite.

Name_____

Address_____

City_____ State_____

Here's top fleet economy despite start-stop service

Stanolube HD Motor Oil

The Central Illinois Electric and Gas Company, Rockford, Illinois, operates a fleet of 87 buses. Despite the punishing conditions of city operation, this company has kept at a high level the efficiency of both new and older units.

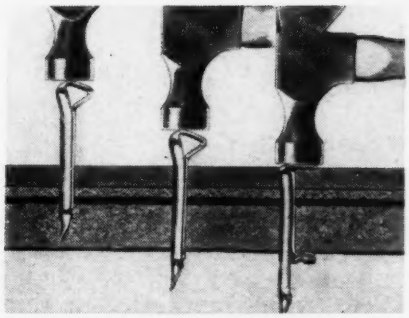
In the older engines, a serious sludge problem was solved by a switch to Stanolube HD Motor Oil. Engine life was materially extended.

Five new Twin Coach buses were started on Stanolube HD in 1946. Each of these units has traveled approximately 100,000 miles without major overhaul. An inspection after 60,000 miles showed that the engines were in excellent condition. Cylinder-wall taper did not exceed .003 inches in any engine. Officials report oil consumption of approximately one quart of oil per 200 bus miles . . . low for city operation.

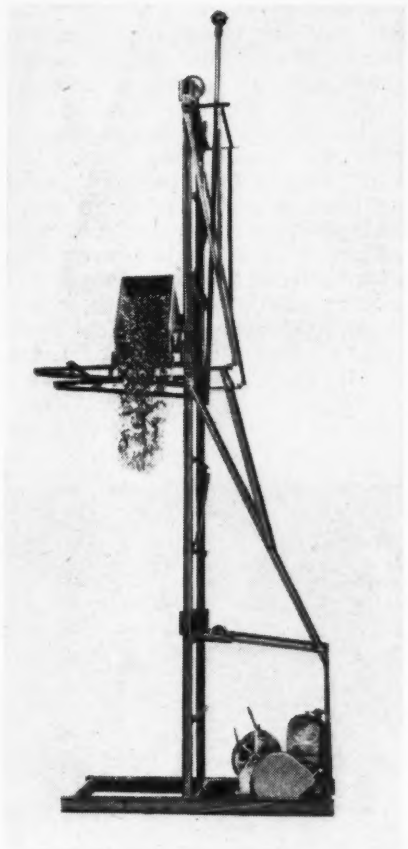
Why not follow this example of efficient and economical operation? Both new and older units in your fleet will benefit from Stanolube HD Motor Oil. This truly heavy-duty lubricant owes its superiority to the combination of effective oxidation-resistant and detergent additives with highest-quality solvent-extracted base stocks.

If you are located in the Midwest, write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois, to secure the services of the Standard Automotive Engineer nearest you.

STANDARD OIL COMPANY (INDIANA) STANDARD



WOOD SHINGLE LOCKING NAIL. —New type fastener locks wood shingles directly to gypsum sheathing. Nail has two legs, one-half inclosing the other, hinged near the end and forming a triangular loop at top. When nail is driven into material last blow of hammer flattens top, causing a locking action. The 1¾-in. EF nails are of low carbon steel zinc coated and count 200 pieces to the pound.—**Elastic Stop Nut Corp. of America, 2330 Vauxhall Road, Union, N. J.**

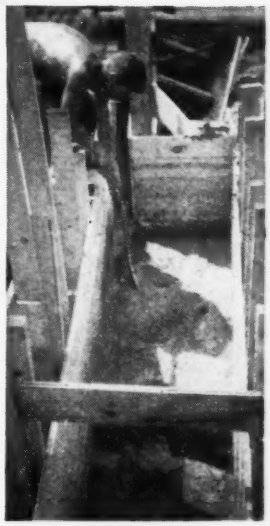


ALL-STEEL DUMPING BUCKET—Designed for use with the O.K. portable elevator for carrying material to height of at least 100 ft. at a maximum speed of 200 ft. per min. Bucket has roller attachment which trips it for dumping at any desired height. Will carry loads ranging up to 2,500 lb. Hoists units are of 10, 18 or 28 hp.—**O.K. Clutch & Machinery Co., Columbia, Pa.**

JACKSON

MODEL FS-6A

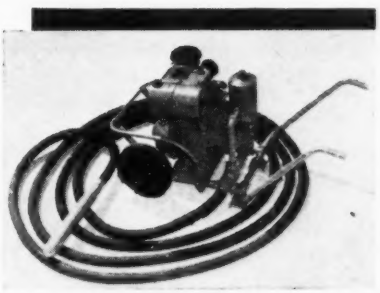
The ACE of Flexible-shaft Concrete Vibrators



Compact — powerful (4.2 H.P.) — built to take the rough and tumble of constant use with a minimum of maintenance. Gas-engine driven — an independent unit ready to go to work anytime, anywhere. Available with vibrator heads in three sizes and flexible shafting in 7' and 14' lengths up to 28'. Frequency is instantly adjustable. The FS-6A is an excellent machine for vibrating concrete on all manner of general construction. Quickly convertible to wet or dry grinding and drilling. Write for complete details.

THE BEST VIBRATOR FOR EVERY TYPE OF CONCRETE PLACEMENT!

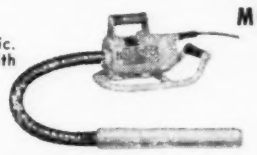
Internal and external types — for thin sections to mass concrete construction — highway, airport and municipal paving — product manufacture. See them at your Jackson distributor or write for literature and our recommendation for any particular type of job.

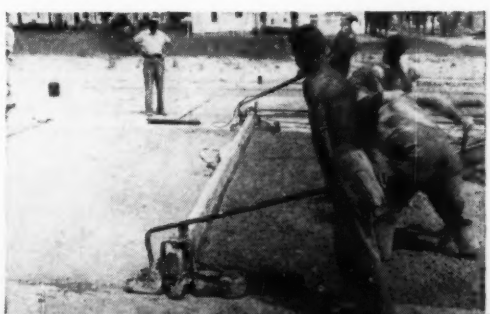


MODEL HS-A4, HYDRAULIC

Gas-engine driven, (5 H.P.). Its 50' reach is highly convenient and a real time saver!

Model FS-7A. Flexible Shaft, Electric. Ideal for decks, thin walls, and with short shafts for spud work.





MUNICIPAL PAVING UNIT

Manually guided vibratory paving machine and portable power plant. Easily places upward of 65 Cu. yards of stiff mix concrete per hour. Undercuts at side forms. Strikes off to crowns, regular and inverted; works right around manholes and other obstructions.

ELECTRIC TAMPER & EQUIPMENT CO., Ludington, Mich.

It's Powered Right when It's Powered by Briggs & Stratton

The dependability and efficiency of "powered" equipment depends on the engine that drives it.

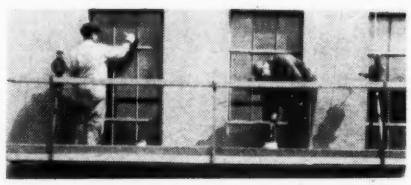
Specify Briggs & Stratton 4-cycle, air-cooled engines. It's the right power for the most exacting requirements. No other single cylinder, air-cooled, gasoline engine gives you the same value, performance, and dependability.

BRIGGS & STRATTON CORPORATION

Milwaukee 1, Wis., U. S. A.

4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES
World Wide FACTORY SUPERVISED SERVICE

SHOVEL LOADER — Dempster-Diggster has ¾-yd. dipper operated on hydraulic crowd and hoist principle without using wheels of machine for digging. Can dig 15 in. below grade or 15 ft. above grade. Powered by 95-hp., 6-cylinder engine. Travels at truck speeds on open road and has turning radius of 16 ft.—**Dempster Bros., Knoxville, Tenn.**

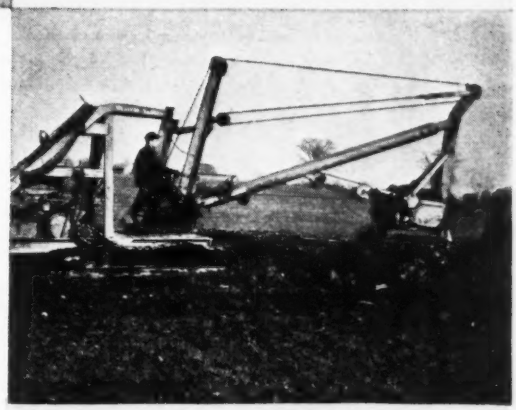


SAFETY SWINGING SCAFFOLD—Designed for painters and maintenance men, Gold Medal Midget safety swinging scaffold is suspended from S or L hooks by 75 ft. of ¼-in. plow steel wire rope. Raised and lowered by pinion gear mechanism which assures speed in raising; worm and gear produce smooth operation and safety in lowering. Scaffold is locked at all times to prevent slipping by locking action of three steel locking pawls, worm and gear lowering mechanism and safety crank handle.—**Patent Scaffolding Co., Inc., 38-21 12th St., Long Island City 1, N. Y.**

VIBRATORY SOIL COMPACTOR—Vibrating soil-packing machine has solid vibrating base plate in direct contact with the soil. Machine weighing 3,100 lb. is powered by 10-hp. diesel engine and moves on level ground at speeds from 28 to 33 ft. per min. Can be driven forward or backward.—**Vibro-Plus Corp., 243 W. 55th St., New York 19, N. Y.**

Portability at NO SACRIFICE of OPERATING EFFICIENCY

IN ROUGH GROUND



IN MUD

IN SAND

The Badger can be placed on the special wheel mounts shown in the photograph above in from 15 to 20 minutes; towed from job to job at motor truck speed, and dismounted in from 5 to 10 minutes. The center of gravity of the machine on wheel mounts is low, the bottom of the crawlers being but 9½" from the ground.

Once on the job, the crawler mounted Badger works at top efficiency regardless of whether the footing is smooth or rough, firm or soft. The ¾-swing design provides the lighter swinging weight and faster swinging speed that move more material on every job.

Money is made working, not traveling. In the great majority of cases it will be found that the superior performance of the crawler mounted unit as compared with a similar unit mounted on rubber will far more than compensate for the few extra minutes it takes to mount and dismount the crawler unit.

AUSTIN-WESTERN COMPANY • AURORA, ILLINOIS, U.S.A.

BUILDERS OF ROAD MACHINERY

Austin Western

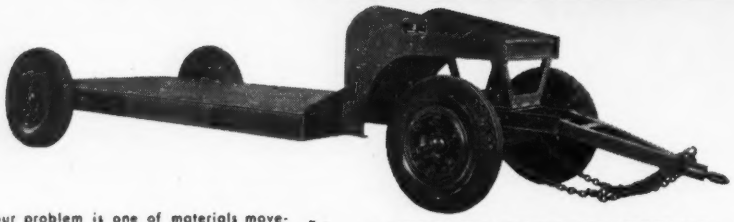
SINCE 1859

MERCER

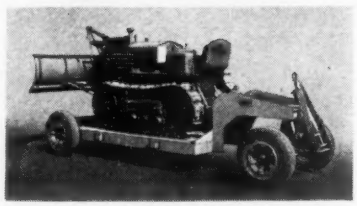
"The Name that Carries Weight"

MATERIAL HANDLING EQUIPMENT

Underslung Trailers for Transporting Construction Equipment.



If your problem is one of materials movement, call in Mercer. Let our broad engineering skills and large-scale manufacturing facilities save you money! We can solve these handling operations to yours, your plant's and your treasury's satisfaction!



Upper illustration shows Mercer Underslung Trailer ready for action. In lower insert, Trailer "mothers" a heavy-duty Tractor.

Write for Illustrated Catalog

MERCER ENGINEERING WORKS, INC.

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MERCER-ROBINSON COMPANY, INC.

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"Black-Topper"

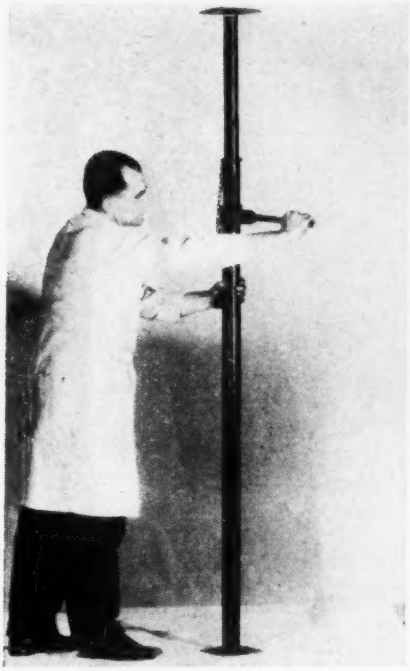
BITUMINOUS DISTRIBUTORS

ACCURATE . . . DEPENDABLE . . . ECONOMICAL—Do the job faster and save time, labor, and material with an Etnyre "Black-Topper." Over 40 years of research, quality construction methods and materials insure accurate, dependable performance. See your Etnyre dealer or write direct.

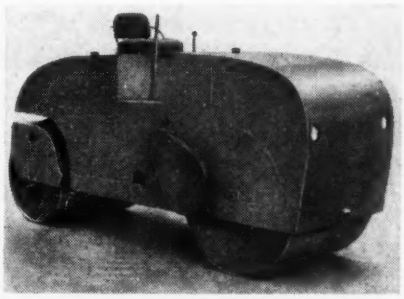
E. D. ETNYRE & CO., Oregon, Illinois

TRENCH ROLLER—Built for road widening, relocation, repair and other types of new construction. Powered by four-cylinder air-cooled engine. Transmission provides two speeds in both forward and reverse motion. Short turning radius is possible with wheelbase of only 90 in. Machine is available with either a 16- or a 20-in. face compression roll. Hydraulic jack permits raising or lowering outboard wheel to level machine when working in any trench up to 13 in. Operator's seat pivots around steering post so that operator faces work at all times. Equipped with 50-gal. sprinkling tank.—**Huber Mfg. Co., Marion, Ohio.**

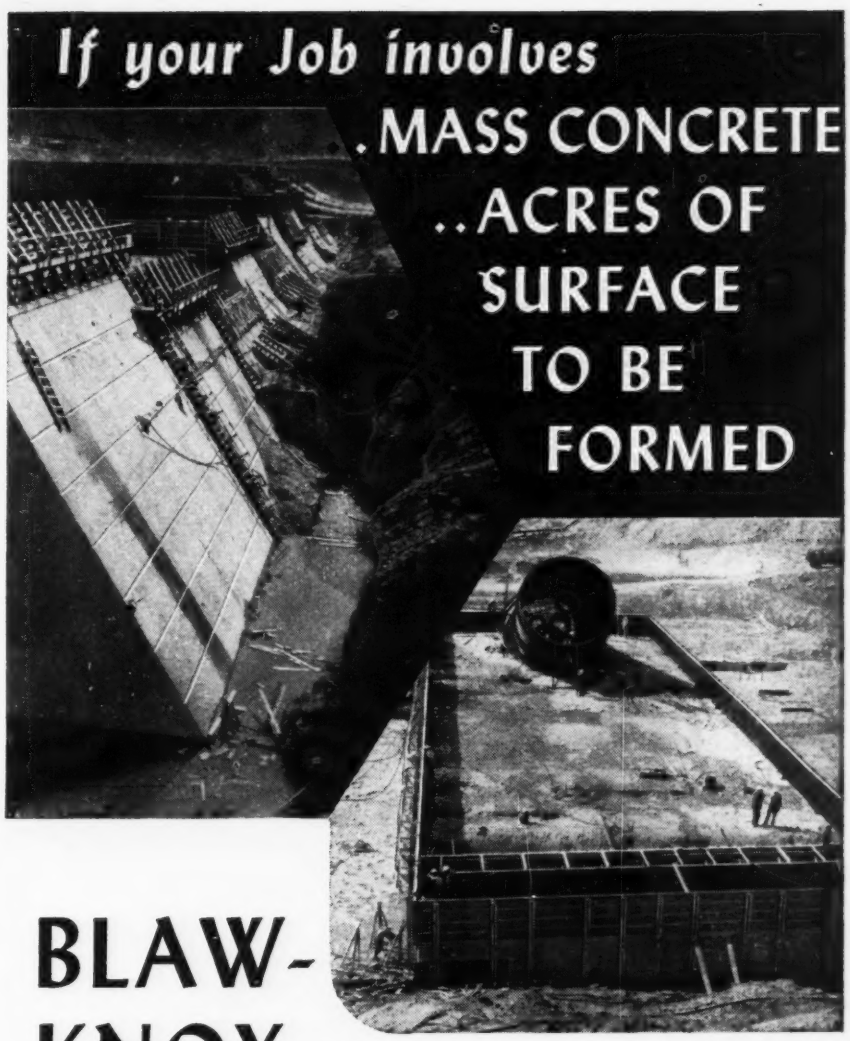
CLAY SEWER PIPE—Clay sewer pipe of high quality is turned out in large volume with a new-type hydraulic press which operates on the low-pressure, large-volume principle. The cost of operation is 40 percent that of steam-operated presses, and based on 8 mills per kwh., the power cost is $2 per 75 tons of product. The press has a 20-in. clay cylinder 36 in. long. The hydraulic cylinder is 19 in. in diameter by 48-in. ram travel. Operating at a normal hydraulic pressure of 750 psi, the pressure on the clay is equal to that of a 44-in. steam cylinder at 140 lb. steam pressure. At 850 lb. it is equal to a 48-in. steam cylinder at 130 lb. Operating pressure is supplied by a Pearne & Lacy 300 gpm rotary vane pump. Driven by V-belts from a 75-hp. motor, the average load over a day's run is approximately 40 hp. The frame is of 10-in. H-beam and 15-in. I-beam construction. The fabricated steel clay cylinder has cast-iron liners. The press requires an overhead tank of 150-gal. capacity and a storage tank of about 1,200-gal. capacity. Three methods of feeding clay into the vacuum chamber may be used: the ram-type feeder, feeding from a de-airing auger or combination machine, or the quick-operating door and fast-belt method.—**Pearne & Lacy Machine Co., Los Angeles, Calif.**



ADJUSTABLE SHORING DEVICE—Made of steel in four heights ranging from 5 ft. 7 in. to 11 ft., adjustable up to 15 ft., when fully extended. Operation by one man involves only three movements: lifting inner tube, inserting pin in nearest hole to act as safety lock and turning handle for final adjustment. No loose parts to mislay. Can be removed and used again and again. **—Acrow, Inc., 155 Washington St., Newark, N. J.**



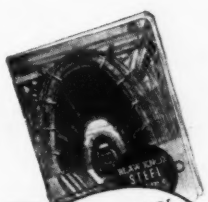
TANDEM ROLLER — A variable weight tandem roller in three sizes from 3 to 10 tons. Sealcoat rollers have single lever hydraulic steering, electric starter and foot-operated parking and service brake. Designed to work within 2 in. of buildings or fences, the 3-5-ton unit is powered with a 25-hp. gasoline engine. Steering and compaction rollers are both 38 in. wide. Roller has two forward and two reverse speeds of 1.55 and 4.0 mph. Wheelbase is 91 in. and turning radius 12 ft. Frame clearance allows operator to work right up to the curb line to eliminate costly hand finishing. Seat location atop machine enables operator to see work in all directions.**—Shaw Sales & Service Co., 5100 Anaheim Telegraph Road, Los Angeles 22, Cal.**



BLAW-KNOX *has devised an ingenious* STEEL FORMING *method for you*

Blaw-Knox has proved the practicability of its forming method for pouring concrete monoliths of gravity type dams—a design of steel form which is easily handled through successive lifts—and which can easily be aligned for all job conditions.

It would be our pleasure to tell you about this tried and proved system of BLAW-KNOX STEEL FORMS for concrete monoliths. You will incur no obligation by asking for this information.

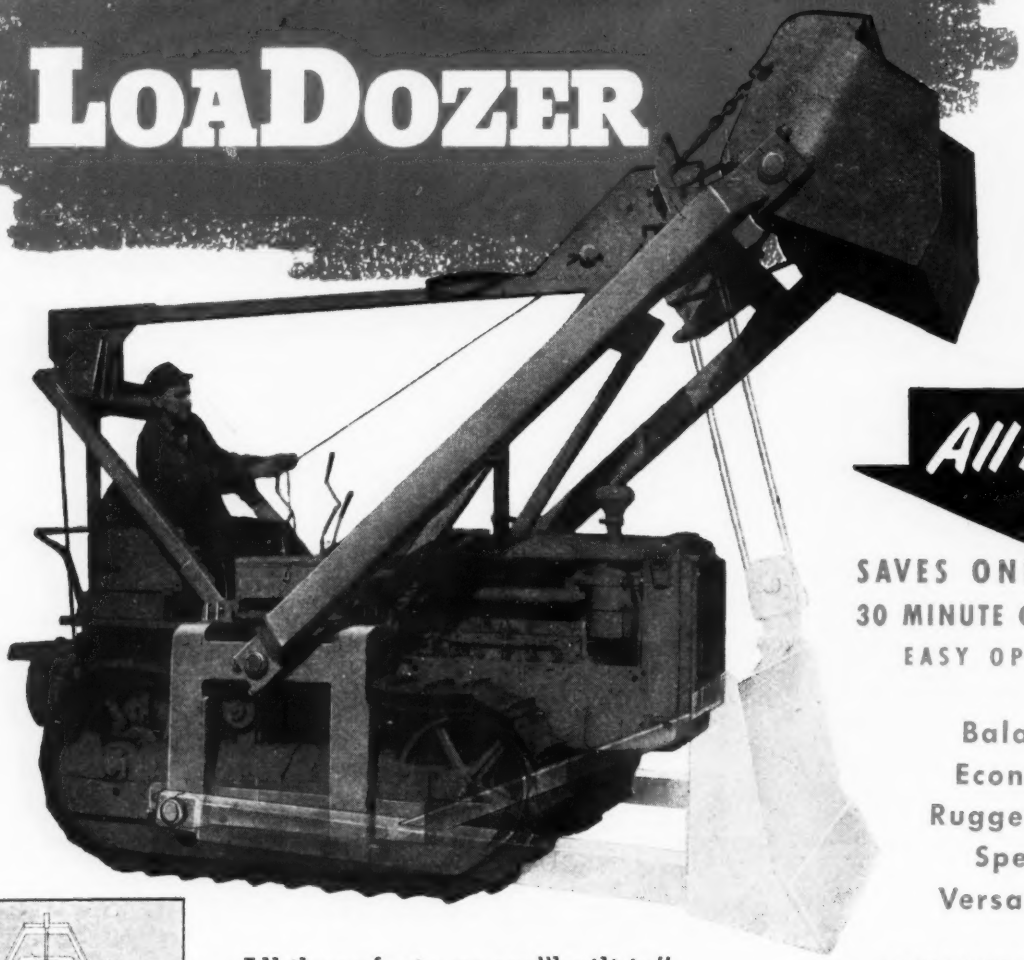


◀ Blaw-Knox STEEL FORMS have been serving engineers and contractors for over 40 years. The Blaw-Knox record of accomplishment is shown in Catalog 1836. Send for a copy.

BLAW-KNOX *has the* STEEL FORM "Know How"

BLAW-KNOX DIVISION of Blaw-Knox Company
2086 Farmers Bank Bldg., Pittsburgh 22, Pa.
Birmingham • Chicago • New York • Philadelphia • Washington

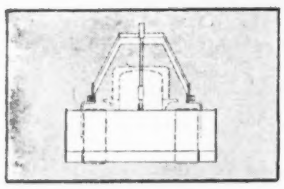
NOW-THE SOUTHWEST LOADOZER

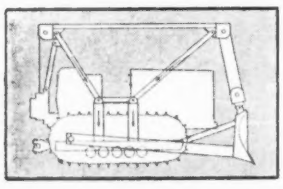


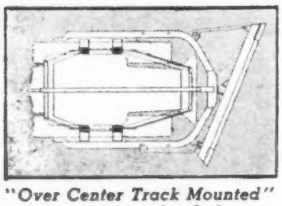
All this

SAVES ONE TRACTOR
30 MINUTE CHANGE-OVER
EASY OPERATION

Balance
Economy
Ruggedness
Speed
Versatility







"Over Center Track Mounted" design gives perfect balance

ANOTHER EXAMPLE OF *Southwest's* LEADERSHIP

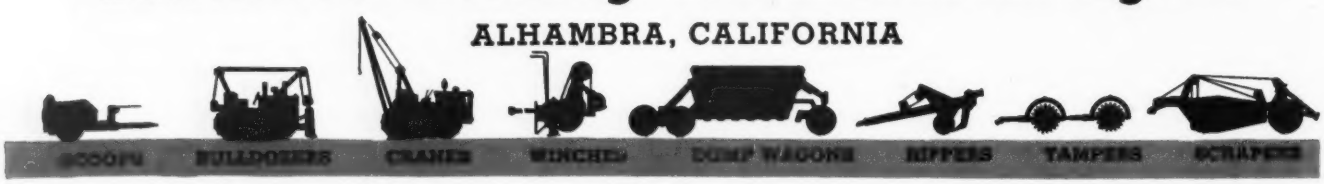
All these features are "built-in" qualities of the new SOUTHWEST "LOADOZER"—Extra values that mean greater efficiency and economy in Loader and Bulldozer operations. Remember—you SAVE ONE TRACTOR—it takes only 30 MINUTES TO CHANGE OVER this combination Loader-Bulldozer unit.

- Built for all four makes of track type tractors.
- See your equipment dealer about the complete line of SOUTHWEST CONSTRUCTION EQUIPMENT.
- For complete specifications on this Loader-Bulldozer combination unit—WRITE FOR BULLETIN CM-11.

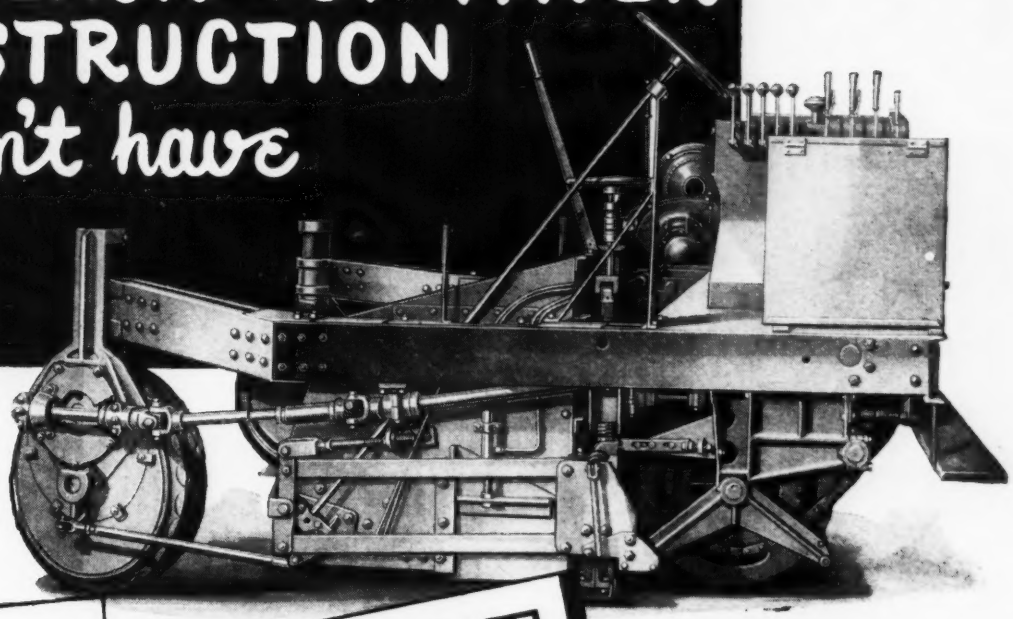
CONSTRUCTION MACHINERY DIVISION

Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA



Here's BLACK TOP PAVER CONSTRUCTION you won't have to rebuild!



Hydraulic Controls — for easy handling

Continuous Course Correction— corrects irregularities with successive courses

Powerful Six Cylinder Engine — power to handle the heaviest truck

Four Wheel Drive

Cutter Bar—overlaps and compacts joint—"crowds" and compacts materials

Power Cut-Off—permits carrying load over intersections and eliminates tag-end run-outs

End Gates — permit feeding material out to sides with cutter bar extension

Screed Heater — assures better handling of material

Crowning Adjustment — for any crown or bank

Either Rear Roller — can be disengaged for quick turning

Hopper — big . . . adjustable . . . for narrow pavements

Sturdy, Heavy Construction—that stands the strain of work without constant rebuilding

Adnun Carryall—easily attached . . . makes moving up on jobs easy

It's an ADNUN TRADE MARK REGISTERED BLACK TOP PAVER

LOOK at that frame! There is design and construction that won't beat itself to pieces in handling heavy trucks up grades or in the rough going that is often a part of the job of spreading stone and slag.

Four Wheel Drive spreads the travel load over the whole machine and facilitates handling and smoother control for the reduction of shock.

Users have found that they don't have to rebuild Adnun Black Top Pavers.

Look over the other features listed here. No other Black Top Paver brings you such a combination of advantages. Adnun brings you smooth pavements at lower cost and longer machine life. You will be making plans for the future. Let us send you a catalog on the Adnun and if you are figuring on concrete paving you will want the Multi-Foote Catalog, too.

THE FOOTE COMPANY, INC.

Subsidiary of Blaw-Knox Co.

1910 State Street **Nunda, New York**

• For your concrete jobs—ask about the MultiFoote Duo-Mix (Double Drum) 34-E Paver and the MultiFoote Single Drum 34-E Paver. They bring you advantages found in no other concrete paver.

FOOTE

MULTIFOOTE CONCRETE PAVERS
ADNUN BLACK TOP PAVERS
Kinetic ASPHALT MIXERS

See page 127

Special delivery for Joe the Rigger
. . . the order specified Crosby Clips.

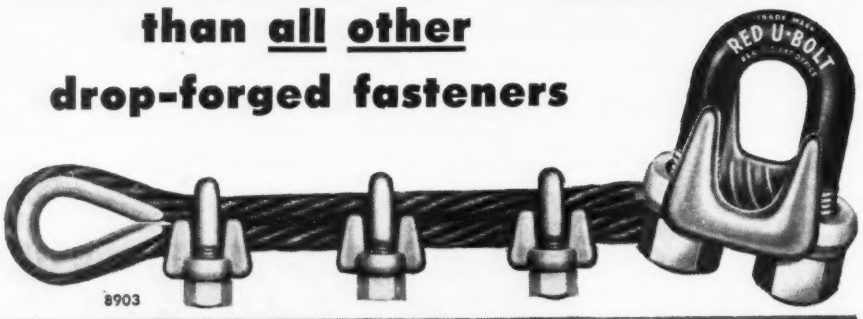
For any job where *safety* counts—CROSBY CLIPS! For rigging cranes and derricks . . . connecting swing cable . . . guying poles and towers—CROSBY CLIPS. They're hot dip galvanized, and drop-forged. High side wings and channel grooved base assure perfect lay of the rope. And CROSBY CLIPS hold with a *vise-tight* grip. Sizes for wire rope from ⅛ inch to 3 inch. Sold by distributors everywhere. Made only by AMERICAN HOIST and Derrick Co., St. Paul 1, Minnesota.

Industry uses more

CROSBY CLIPS

than all other

drop-forged fasteners

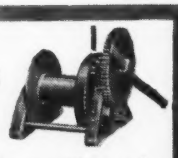


For Armored Construction . . . specify

AMERICAN BLOCKS AND SHEAVES

● A complete line of wire rope blocks—all types, all sizes, in capacities from 1½ to 250 tons. Thick steel side plates, heavy pins and axles. Ask for American equipment when ordering.

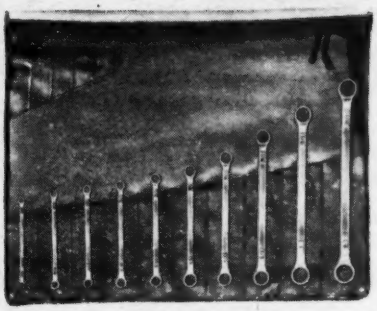
ONE MAN LIFTS 10,000 LBS. WITH THE AMERICAN HANDIWINCH

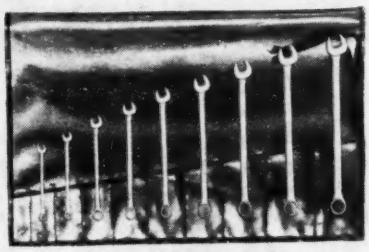


● Gives one man the power of a crew. Weighs only 95 lbs. Handles lifting, loading and pulling jobs up to 5 tons. All steel construction. Ask your distributor.

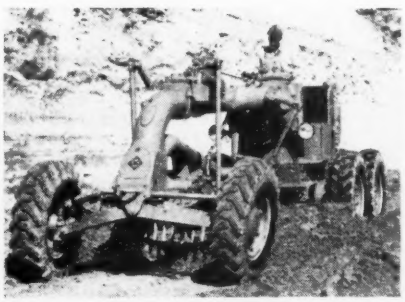
PORTABLE ELECTRIC SANDER-POLISHER, named "Duo," has 21 accessories that quickly change it to a grinder, a drill, a steel wooler, a buffer or a wire brusher. Operates in horizontal, vertical and overhead positions and permits working in close quarters. Accessories: Sanding: 3-in. pad assembly, three grades each of 3 in. and 5 in. abrasive disks; Polishing: two 5-in. lamb's wool bonnets; Grinding: drum and cone adapter assemblies, three grades each of drum and cone abrasive sleeves; Drilling: drill chuck and adapter for drills up to ¼ in. Buffing: 5-in. wool buffing pad. Wire Brushing: ½-in. steel wire brush.—**Clarke Sanding Machine Co., Muskegon, Mich.**

SNOW LOADER—Utility model features spiral feed with renewable steel teeth and with capacities from 8 to 20 cu.yd. per min. Powered by 27-hp. LeRoi four-cylinder engine. Has deep-trough boom with complete hydraulic control, swivel discharge spout controlled through 180 deg. from operator's platform. Loader is self-propelled and one-man operated. Has two speeds forward and two reverse. Elevator clutch has automatic overload release to prevent damage to machine. A bucket boom is available separately to convert the chassis into a loader for handling such heavier materials as sand, earth, gravel or broken stone. —**N. P. Nelson Iron Works, Inc., Clifton, N. J.**





LONG-TYPE WRENCHES—Six box wrenches and nine combination box and open-end wrenches with longer-than-standard lengths provide greater leverage, holding power, clearance and reach needed on all types of mechanical assemblies. Six double-end box wrenches have openings from 5/16 to ¾ in. Nine combination wrenches have openings from ¼ to ¾ in. These wrenches, bearing the trade mark name "Proto" are available in various sized kits.—**Plomb Tool Co., Los Angeles, Cal.**



HEAVY-DUTY MOTOR GRADER—Machine of special tubular frame design weighs 22,140 lb. and is powered by 104-brake hp. General Motors two-cycle diesel engine. Complete blade range to handle any job is hydraulically controlled. A 30-in. throat clearance enables the grader to handle big windrows without interference. Moldboard is designed to roll, not push, material away. Operator platform is built for improved visibility. Mechanical system of circle control enables the operator to obtain exact settings. Grader has six speeds forward ranging from 2.4 to 16.6 mph. and three reverse speeds ranging from 2.8 to 6.2 mph.—**Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee, Wis.**

Here are Hooks that hoist your Profits!

Clevis Hoist Hook Is Quickly Attached . . . Changed . . . Saves Time and Labor. Slip the bolt through the clevis, spin the nut, spread the cotter and this heat-treated hook's ready and safe for your toughest jobs. No welding, no spelter, no connecting fittings required. Send for Laughlin's famous data book of industrial fittings . . . Catalog No. 140.

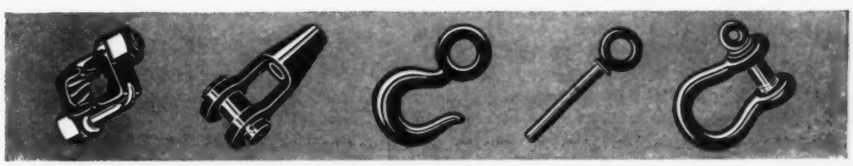
THE THOMAS LAUGHLIN CO., DEPT. 1, PORTLAND 6, MAINE.

Laughlin Safety Hook . . . "The Latch Locks The Load" . . . adds a big safety factor to every lift. Sturdy latch, stainless steel spring. For every industrial application.

Laughlin Replacement Swivel Hook Assembly with Safety Latch. Bolts on and off . . . no machining . . . no threading. For hoists, cranes, lashing operations. One-ton and half-ton sizes.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



S. M. DIXON USES TO CUT COSTS ON ARKANSAS

***"A TOURNACRANE ON THIS JOB HAS CUT OUR COSTS CONSIDERABLY"*—Asserts R. W. Colby, Supt. for S. M. Dixon on McCrory, Ark., job, who used rig to handle loading, unloading of materials, steel erection, concrete placement, other utility lift and carry work.**

S. M. Dixon Construction Co. of Warren, Ark., is using a 7-ton *TOURNACRANE* to speed completion of three beam bridges, part of State Highway 17 being built between McCrory and Tupelo. New route passes through low, swampy terrain, crosses several channels of Cache River, requiring bridges 100, 400 and 800 feet in length. All three employ same design — a series of four-pile piers, with five 34′ x 2′ x 8″ steel girders per span. Versatile *TOURNACRANE* handles all girder erection . . . carries them from stock pile or semi-trailer through mud holes and ruts, and accurately spots them on pier caps.

Operator Delton Roe says, "I can operate this rig all day long and never be tired." Here he maneuvers the *TOURNACRANE* up side of abutment to put girder in place.

DISTRIBUTORS: Certain exclusive territories are currently available for marketing *TOURNACRANES* and several other types of LeTourneau equipment not in the earth-moving field. All applications will be carefully considered.

TOURNACRANE BRIDGE JOB . . .

ELIMINATES NEED FOR SECOND CRANE—

When unseasonal rain forced storage of steel half-mile from job, Dixon had to haul it in when needed with assistance of stand-by tractor. But rugged, fast-moving *TOURNACRANE* cut costly man hours and eliminated need for second crane . . . it traveled the half-mile to load trailer, returned half-mile to unload it and then handled actual steel erection, all despite mud holes and spongy ground caused by high water table . . . *only foot-and-a-half from surface!*

Versatile as a handy-man, the 7-ton rig easily handled the job's general utility work . . . placed reinforcing steel in cap forms . . . handled concrete bucket for placement of pier caps . . . and spotted miscellaneous structural members, expansion shoes, etc., with speed and accuracy.

MOVES JOB-TO-JOB OVER HIGHWAY—

TOURNACRANE'S big, low pressure tires work or travel over pavement without surface damage . . . permitted Dixon to drive his crane 193 miles from Warren bridge job in 13 hours . . . eliminated shipping delays . . . saved freight bills.

Here's a unit that will save you plenty . . . and it's only one of a complete line designed to handle the toughest lift and carry jobs. So, write without obligation for LeTourneau engineers' solution to your specific lift and carry problems. Remember, *there's a TOURNACRANE to fit your job!*

ABOVE: *TOURNACRANE* places concrete for pier cap with ½ yard bucket, weighing 3,100 lbs. Rig's design permits big pay load at long reach.

BELOW: Despite spongy, muddy terrain, *TOURNACRANE* maneuvers, spots girder swiftly, accurately.

BELOW LEFT: 7-ton utility rig handles all lift and carry work on Dixon's job. Here it quickly unloads incoming steel girders.

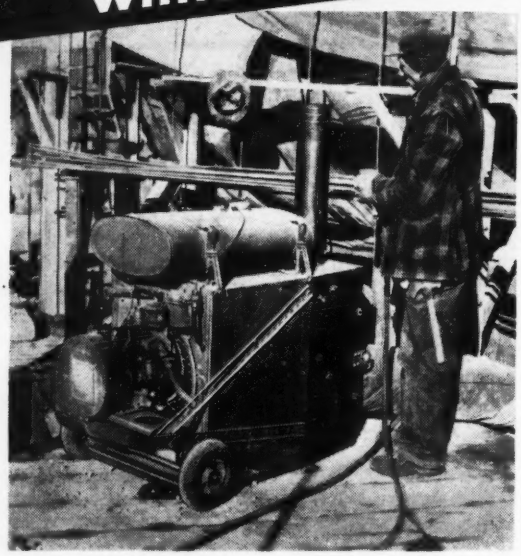
BELOW: Backing into position, *TOURNACRANE* readies its load for placement. Positive electric controls and power steer make this maneuvering easy.

LeT EQUIPMENT

R.G. LETOURNEAU INC

TOURNALAYER DIVISION ● LONGVIEW, TEXAS

HEAT
WHERE YOU WANT IT- WHEN YOU WANT IT- without waste

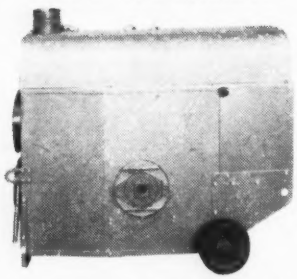


THE ORIGINAL HERMAN NELSON Gasoline-Burning PORTABLE HEATER

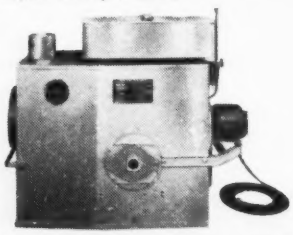
- **Provides Quick, Clean, Safe Heat—*without* soot, fumes or open flame!**
- **Abundant *fresh*, heated air —*forced* to areas where most needed!**

These time-tested, job-proved Portable Heaters step up winter production by eliminating delays caused by cold weather. Can be used for countless applications requiring temporary or emergency heat. Especially suited to jobs requiring a self-contained, self-powered heating unit. Full 250,000 BTU per hour capacity — enough to heat three ordinary five-room houses — yet no bigger than a kitchen stove!

Also Available



New Herman Nelson De Luxe Model Portable Heater—Oil Burning—Electric Motor Powered—Automatic Ignition—250,000 BTU per hour.

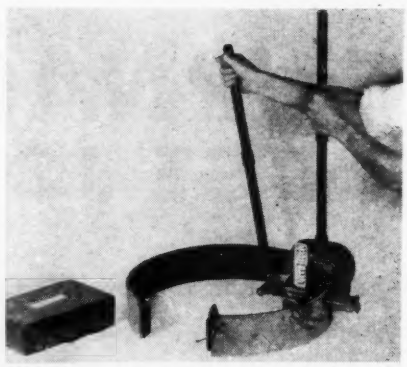


New Herman Nelson Economy Model Portable Heater—Oil Burning—Electric Motor Powered — Low First Cost — 125,000 BTU per hour.

Write for Interesting Free Booklet on "COST CONTROL"

THE HERMAN NELSON CORPORATION MOLINE ILLINOIS

SINCE 1906 MANUFACTURERS OF QUALITY HEATING AND VENTILATING PRODUCTS

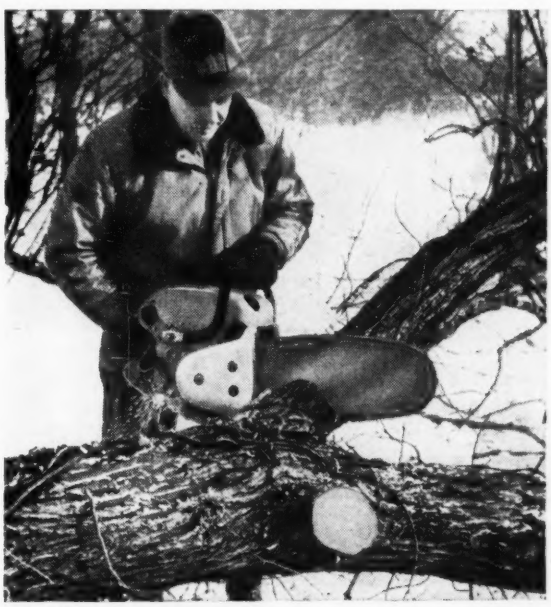


INDUSTRIAL RIVETER—Suitable for riveting brake linings to brake bands and brake shoes, either internal or external type such as are common on power shovels, cranes, draglines and other heavy-duty construction equipment. Can handle linings up to 10 in. wide and any rivet up to 2 in. long. Gray-rock kit comes complete with hand riveter, drill, counterbores, clamps and wrench. With hand riveter and electric drill, brake bands and brake shoes can be easily relined in the field.—**United States Asbestos Division, Raybestos-Manhattan, Inc., Manheim, Pa.**

BLUEPRINT FILING CABINET—Draw-In-Dex cabinet of fire-resistant steel accommodates up to 1,000 prints, any of which can be removed or replaced without disturbing the others. Cabinet measures 20x30 in. and is 4 ft. high. Held by suspension rods on hinges, drawings or prints hang smoothly and occupy minimum of space and are properly indexed. Built-in index cards and lock are standard equipment. Colors of cabinet are gray, green, and brown. When cabinet's front panel is opened, rods slide apart so that prints can be removed or inserted in their indexed positions.—**Empire Development Corp., 209 Union Trust Bldg., Washington, D. C.**

Close to ground felling saves waste

Fast bucking and under cut bucking



Limbing from any position

Z-Z-Z-Z-I-N-G

and down it goes!

. . . fast, easy, and at a saving with the

DISSTON

ONE-MAN CHAIN SAW

WITH MERCURY GASOLINE ENGINE

It's only a matter of seconds . . . about 30 to fell an 18-inch tree . . . and all this power in the hands of one man. Bucking and limbing cuts take even less time. Think what speed like this can mean to you in increased production and lower timber-cutting costs!

Wherever used you can count on dependable performance, long life and low cost maintenance.

Light weight. 3½ h.p. Engine. Easy starting and stopping. Simple operation, all controls in one hand. Runs in any position, even upside down, without adjustment. Self-lubricating throughout. Weatherproof and dustproof. And it bears the Disston guarantee.

For further particulars, get in touch with your nearest Disston Chain Saw Dealer or send in coupon.

HENRY DISSTON & SONS, INC.
1248 Tacony, Philadelphia 35, Pa., U.S.A.
***Canadian Factory:* 2-20 Fraser Ave., Toronto 1, Ont.**

WHEN YOU BUY A DISSTON PRODUCT YOU BUY DISSTON STEEL SKILL and SERVICE

MAIL COUPON TODAY

HENRY DISSTON & SONS, INC.
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Dear Sirs: Please send me full particulars regarding the DISSTON ONE-MAN CHAIN SAW.

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W.T.Q.

SPELLS SECURITY!

FOR OVER 35 YEARS THE THORO SYSTEM HAS BEEN SOLVING WATER PROBLEMS WITH MASONRY—

WATERPLUG to stop the leaks

THOROSEAL fills and seals surface

QUICKSEAL for beautiful finish

Never before has the masonry business been so big, and never before have the problems accompanying it been so great.

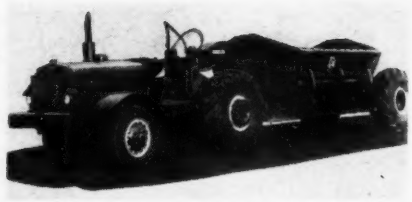
Today, when masonry starts sweating or springs a running leak, The THORO System products are brought on the job to immediately correct the situation. In 35 years, these products have been gaining a nationally-known name.

No wonder the old-time contractor will always specify this time-proven way of correcting masonry problems. It's the only sure way!! Order through your builder and contractors supply dealers.

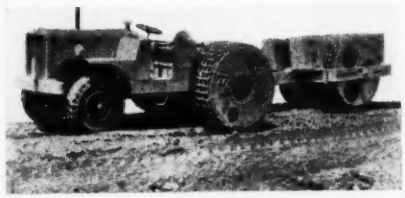
WRITE NOW!

Get our 16 page brochure, pictorially describing, in detail, "How To Do It," it's yours for the asking. No. 142

Standard Dry Wall Products
BOX X, NEW EAGLE, PENNA.



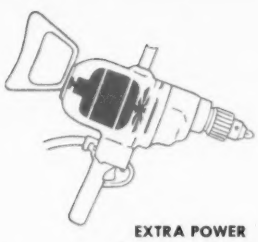
SIDE-DUMP WAGON—New side-dump Euclid for off-the-highway earth or rock haulage has pay load capacity of 40,000 lb. and a struck measure capacity of 13 cu.yd. Down-folding side gates open automatically by mechanical linkage when body is raised by hydraulic twin hoists. Either right- or left-side dumping is possible. Euclid tractor is powered by 200-hp. diesel engine and provides top speed, loaded, of 33.4 mph. Tires on drive and trailer wheels are 24x25 for good traction and flotation on soft fills. Equipment can dump load non-stop.—**Euclid Road Machinery Co., Cleveland 17, Ohio.**



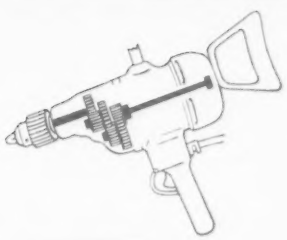
GRID ROLLER—For heavy-duty compaction of fills, subgrades, and stabilized base courses, this new roller compacts from bottom to top without leaving a loose surface layer, and depresses or pulverizes oversize stones. Avoids lateral displacement during rolling. Offered as 5-ft. width tow units for use singly or in multiple combinations, or as an 8-mph. self-propelled assembly 10 ft. wide, as illustrated. Device for varying applied pressure optional.—**Gardner-Byrne Construction Co., Inc., 649 S. Olive St., Los Angeles 14, Calif.**

SNOW PLOW WAX—Penn Drake snow-plow wax is suitable for spray as well as brush application. It creates hard slick surface off which snow slides easily, preventing "piling." One gallon of sprayed wax covers 300 sq.ft. of plow working surface; brush application covers 250 sq.ft. per gal.—**Pennsylvania Refining Co., 2686 Lisbon Road, Cleveland, Ohio.**

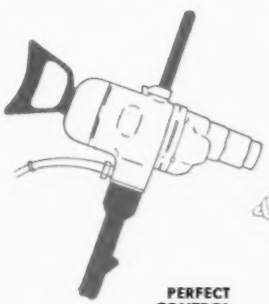
Here Again, B & D Quality Saves You Time and Money



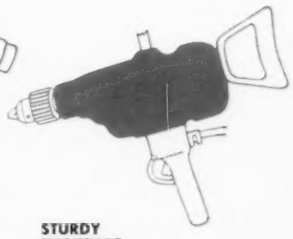
EXTRA POWER is what Black & Decker-built motors give you. They won't stall no matter how hard you bear down.



HEAT-TREATED alloy steel gears—spline-mounted spindles—roller and ball bearing equipment throughout to absorb severe thrust in any direction; your guarantee of top performance on the toughest jobs.



PERFECT CONTROL is most important when your workers are handling heavy Drills. B&D gives you a choice of handles and, on the largest Drills, extra long safety switch and pipe handles for complete control and balance.



STURDY HOUSINGS on B&D's large Drills are built to take the rough use that is almost unavoidable on the jobs for which they are designed—yet light in weight—*aluminum.*

When you're drilling large holes—it's more important than ever to get the best Drills money can buy! That's why the big Black & Decker Drills are your best investment. They have the power and torque, the huskiness and stamina, to make your toughest drilling jobs seem easy . . . and come back for more, day after day after day! Check the Black & Decker quality-built features described at the left. Then call your nearby B&D Distributor for complete details on the complete line of B&D HEAVY-DUTY DRILLS—1/4″ to 1 1/4″. For your free copy of our catalog, write to: The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Maryland.

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PORTABLE ELECTRIC TOOLS

DRILLS • SANDERS • BENCH and PORTABLE GRINDERS
SCREW DRIVERS • SAWS • HAMMERS • SHEARS

Follow the lead of the leaders

Take a look at the excavating industry. Notice how consistently the leaders are Bucyrus-Erie equipped.

One reason they're leaders is that they recognize good equipment. They know it pays to choose machines that deliver steady high production . . . machines that stay on the job and out of the shop.

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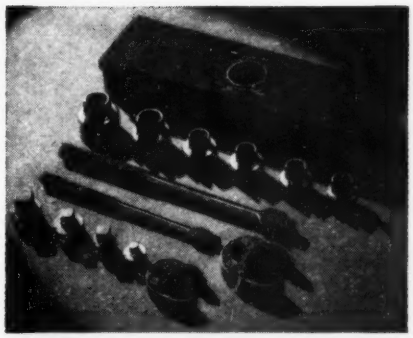
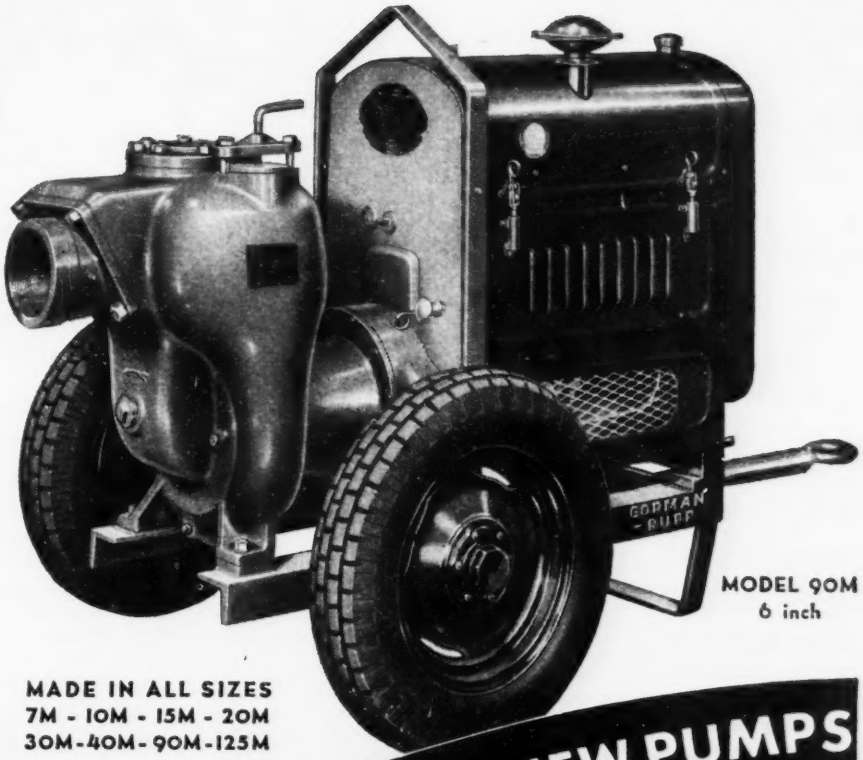


OPEN-END RATCHET WRENCH is designed for use on pipe, tube, conduit, cable and rod fittings where ordinary ratchet cannot be used. Ratchet heads operate in a 7½-deg. arc or less, making it usable in restricted areas. Ratchet heads, sockets and accessories may be bought separately or in sets in practically all sizes. An adapter makes it possible to use standard sockets with the head.—**C. J. Hendry Co., 27 Main St., San Francisco, Calif.**

COMBINED LADDER AND UNLOADING RAMP—Made of steel tubing weighing 120 lb., device is extensible and designed for attachment to rear end of motor truck or trailer for unloading heavy freight, drums of oil. Two telescoping sections are held in place with a pin and safety lock when hanging vertical during traveling. Can be installed by drilling four holes in rear of truck or trailer and attaching with four bolts. Ramp plate is equipped with two-I-beam bumpers for protection when backing into dock. Can be used as full ramp, half-ramp or catwalk. When not used for unloading, device hangs folded up in vertical position on rear of truck, making a convenient ladder. Has ample road clearance when atttached to trucks or trailers with floor heights 45 in., or higher. Welded construction is used throughout.—**Marion Ramp Co., 508 Oak St., Marion, Ohio.**



MODEL 90M
6 inch

MADE IN ALL SIZES
7M - 10M - 15M - 20M
30M-40M-90M-125M

GORMAN-RUPP'S NEW PUMPS

CHALLENGE ANY PUMP TO MATCH THEIR PERFORMANCE

With a new complete line of Contractors' Pumps, Gorman-Rupp has topped their own past high record of performance with a better pump --

-- QUICKEST PRIMING

-- HIGHEST PRIMING

-- PUMPS MORE DIRTY WATER

Compare them for priming speed:

The new Model 15M (3″) primes at 25 ft. suction lift in 61 seconds.

The new Model 90M (6″) primes at 25 ft. suction lift in 44 seconds.

And the Gorman-Rupp is still the most simple pump --

No ports, no valves, no clean-out plates, nothing to cause stoppages.

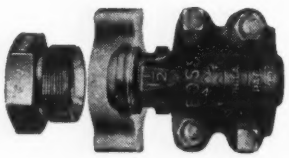
Write for the new Contractor's Bulletin 8-CP-11

THE GORMAN-RUPP
Guarantee

Our distributors are authorized to put a Gorman-Rupp Contractors' Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water more hours, using less gasoline and to prime quicker than any other self-priming pump. If it isn't the best all around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

Quality Couplings ...For Reliable LOW COST Service



"G J-BOSS" GROUND JOINT, STYLE X-34 FEMALE HOSE COUPLING

For all high or low pressure steam, air and fluids, including oil, hydraulics, butane, etc. Washerless construction provides a leakproof, soft-to-hard metal seal between stem and spud. Malleable iron "Boss" Offset and Interlocking Clamp exerts powerful, full-circumference grip on the hose—proof against blow-offs. Cadmium plated—rustproof. Sizes ¼" to 6".

Note: For washer type couplings of otherwise identical design, specify "Boss" Female Couplings, Style W-16.

"BOSS" MALE COUPLING STYLE MX-16

Companion coupling to both the "G J-Boss" and "Boss" Female Couplings. Corrugated stem has strong hex section for wrench, and collar to engage extensions on clamp segments. Clamp is efficient "Boss" Offset and Interlocking construction. Sizes ¼" to 6", with each size fitting same size straight end hose.

Stocked by Manufacturers and Jobbers of Mechanical Rubber Goods.

IF IT'S A DIXON PRODUCT

IT'S DEPENDABLE

DIXON
VALVE & COUPLING CO.
Main Office and Factory: PHILADELPHIA, PA.
BRANCHES: CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON

15-TON CAPACITY JACK, designed for repairing cranes, and low-set loads in industry, shipyards, on construction jobs and on railroads is 7 in. high, weighs 22 lb. and utilizes a ball thrust bearing instead of a pintle bearing. "Shorty" Jack housing is of one-piece malleable iron, and features machined, cut and heat-treated gears. Ram is made of seamless tubing fitted with a high strength bronze nut, and the screw is heat-treated and fitted to the gear which is supported on the ball thrust bearing. The 1⅛x36-in. long pinch bar end lever makes the "Shorty" Jack quick operating and easy to handle. May be stored conveniently in small operating quarters and is said to be particularly serviceable when low height and great capacity are required.—**Duff-Norton Manufacturing Co., 2709 Preble Ave., Pittsburgh, Pa.**

RESPIRATOR FOR PROTECTION against light concentrations of nuisance dusts encountered in woodworking plants, cement mills, some grinding operations and coal yards, is of streamlined design and allows unobstructed front and side vision. Filter is lightweight, inexpensive and easily replaced. Retainer cup is light and durable. Face mask is molded from high quality rubber and fits faces positively and comfortably. Inhalation and exhalation valves prevent dust infiltration while allowing easy breathing.—**American Optical Co., Southbridge, Mass.**

Meet The Lightweight TUNNEL CHAMP!

On a pound-for-pound basis ARMCO Tunnel Liner Plates are in a class by themselves. They save you money and speed the job.

These sturdy plates are designed for utmost strength with the least possible weight. One unskilled workman can carry, hold and bolt into place an ARMCO Liner Section. Only a structural wrench is needed. Labor costs are low and the job goes fast. Less bulk also means less excavation, and storage requirements are smaller. With ARMCO Plates you buy no excess metal, and this keeps job costs down.

Consider tunneling that next job with the aid of ARMCO Tunnel Liner Plates. You'll find it the simplest, most inexpensive way you ever saw to install conduits, sewers and similar structures. The hazards and inconvenience of open trenches are avoided and business above ground goes on as usual. Write for prices and complete information on your specific needs. Armco Drainage & Metal Products, Inc., 1965 Curtis Street, Middletown, Ohio.

ARMCO TUNNEL LINER PLATES

ARMCO

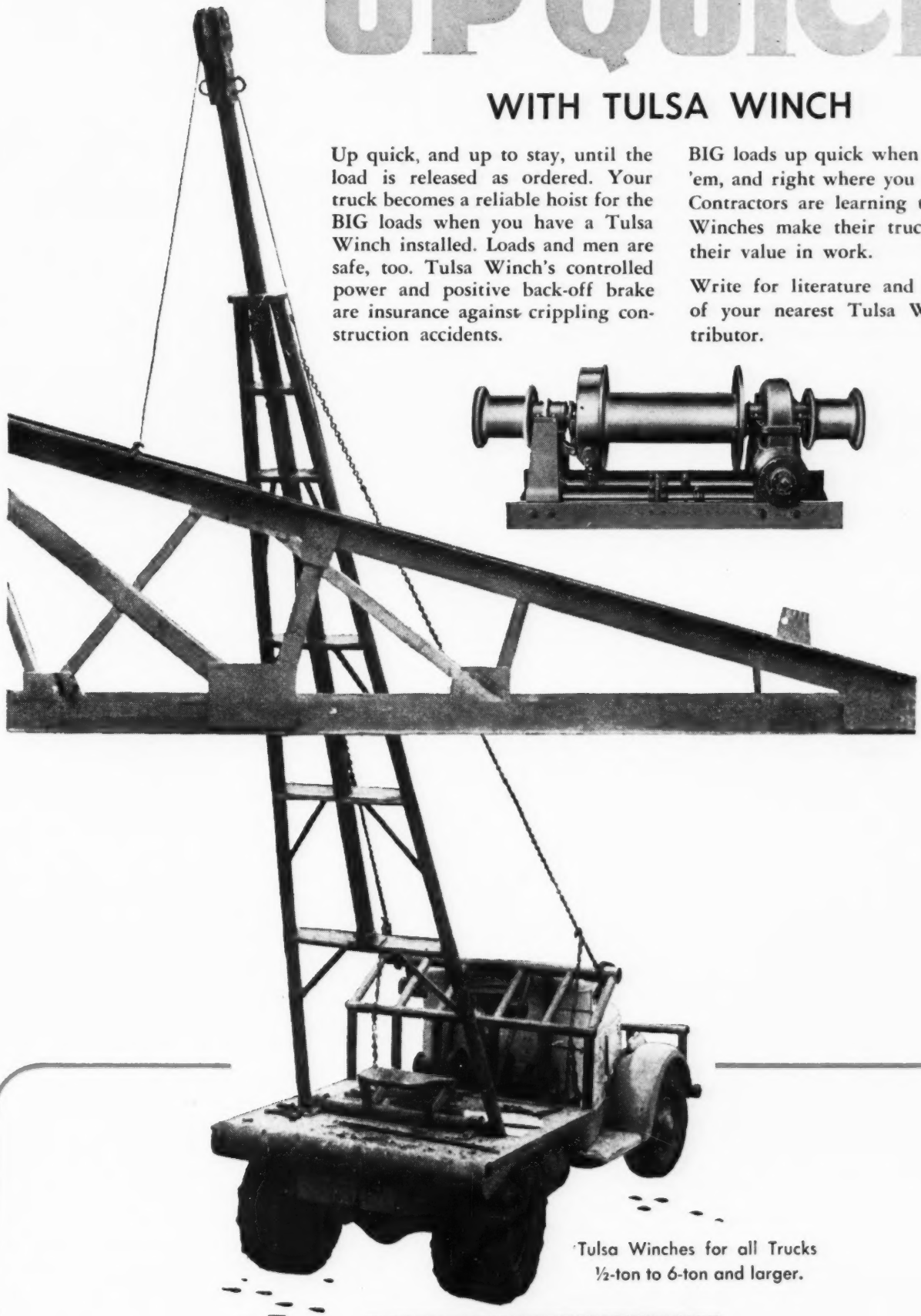
UP QUICK

WITH TULSA WINCH

Up quick, and up to stay, until the load is released as ordered. Your truck becomes a reliable hoist for the BIG loads when you have a Tulsa Winch installed. Loads and men are safe, too. Tulsa Winch's controlled power and positive back-off brake are insurance against crippling construction accidents.

BIG loads up quick when you want 'em, and right where you want 'em. Contractors are learning that Tulsa Winches make their trucks double their value in work.

Write for literature and the name of your nearest Tulsa Winch distributor.



Tulsa Winches for all Trucks
½-ton to 6-ton and larger.

Tulsa Winch
TULSA, OKLAHOMA
DIVISION OF VICKERS Inc.

ON THE ROAD . . AND ON THE JOB

You'll be Out Ahead

WITH

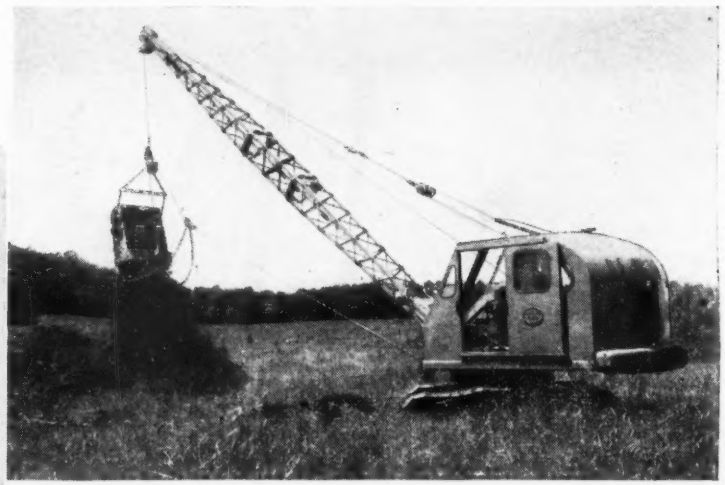
MICHIGAN

MODEL T6K — ⅜ Yd., 6-Ton

Michigan rubber tired truck shovels are famous for speed on the road and on the job. Designed as a unit, with a heavy frame built for the job. Plenty of power gives you 30 mph road speeds. Easy operating air valves control air ram clutches for speedy crowding, hoisting and a 5.5 rpm swing that means extra yardage.

MODEL TMDT-16 — ½ Yd., 10-Ton

MODEL TLDT-20 — ½ Yd., 12-Ton



MODEL C-16 — ½ Yd., 8-Ton

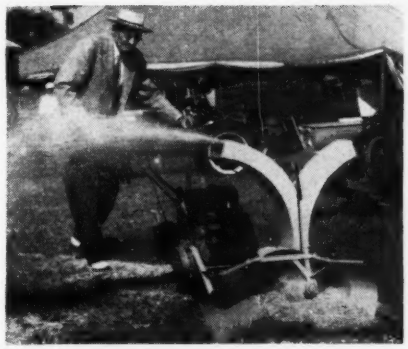
For those swampy jobs the model C-16 — balanced weight distribution — wide pads — low ground pressure — air controlled mechanism, travel and steering.

MICHIGAN

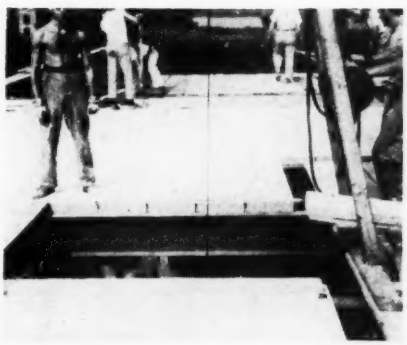
Get the complete details about the entire line of MICHIGAN Mobile SHOVELS-CRANES.

MICHIGAN POWER SHOVEL COMPANY

495 SECOND STREET • BENTON HARBOR, MICHIGAN

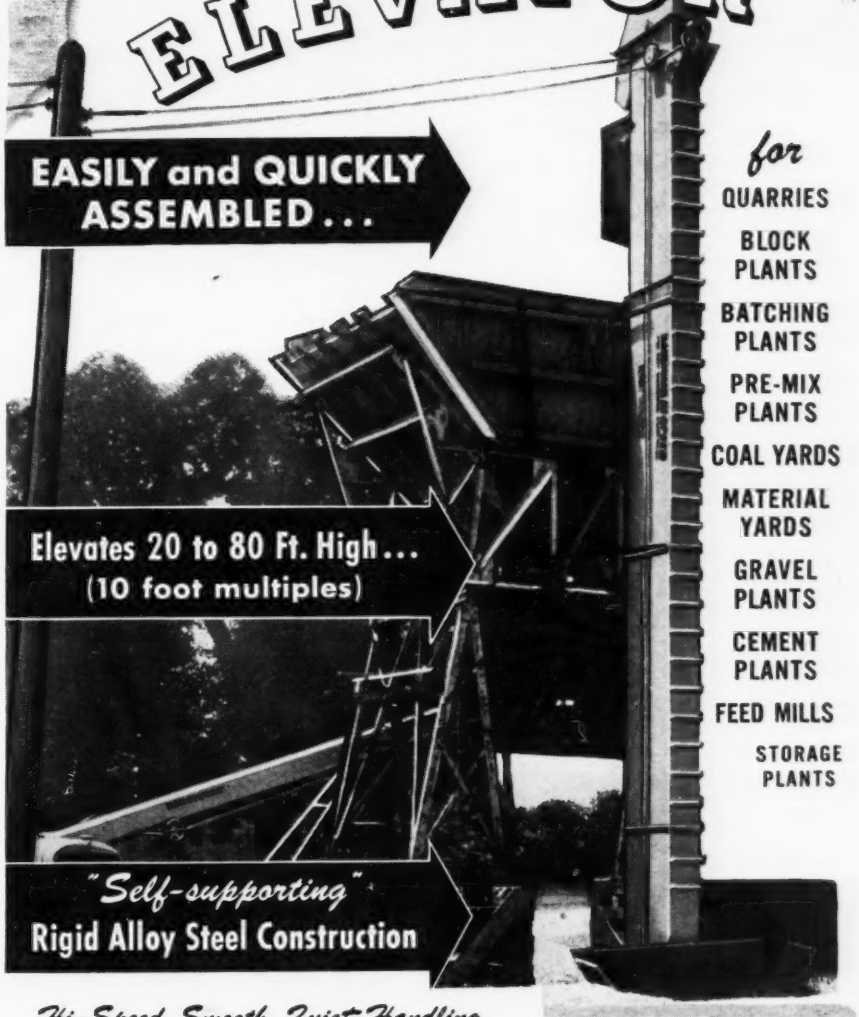


SNOW REMOVAL DEVICE—New device for Roto-ette, a single-wheel power unit, scoops snow from sidewalks and driveways and blows it out of the way. Particularly suited to needs of factories and institutions with long driveway and sidewalk areas. Consists of a reverse wedge-shaped scoop equipped on left-hand side with snow chopper screw conveyor carrying snow to a fan which blows the snow to right or left as desired through spouts to distance of from 15 to 20 ft. clear of the sidewalk or drive. Snow blower clears path 3 ft. wide. Device is guided by handle bars with motor controls located on the handles. Unit is powered by air-cooled motor through a two-speed transmission with multiple-cone clutch running in oil. Blower can be removed and replaced with a blade snow plow.—**Rototiller, Inc., 100 Second St. and Ninth Ave., Troy, N. Y.**



ROOF DECKING—New lightweight Durisol single unit roof plank is made of steel-reinforced mineralized wood shavings combined with Portland cement and molded under pressure. Planks 16 in. wide and up to 8 ft. long support live load of 40 lb. per sq.ft. and require no subpurlins, thus resulting in a claimed saving of nearly 20 percent in structural steel. Made in thicknesses of of 3¼ and 4¼ in. Top side of plank is coated with ¼-in. cement surface at factory and planks are tongue-and-grooved on long sides. In installing slab, galvanized metal clips are wedged to steel flange of supporting member and nailed to plank. The roof plank weighs about 14 lb. per sq.ft.—**Durisol, Inc., 420 Lexington Ave., New York, N. Y.**

Baughman BELT and BUCKET ELEVATOR


EASILY and QUICKLY ASSEMBLED...
Elevates 20 to 80 Ft. High... (10 foot multiples)
"Self-supporting" Rigid Alloy Steel Construction

for
QUARRIES
BLOCK PLANTS
BATCHING PLANTS
PRE-MIX PLANTS
COAL YARDS
MATERIAL YARDS
GRAVEL PLANTS
CEMENT PLANTS
FEED MILLS
STORAGE PLANTS

Hi-Speed, Smooth, Quiet-Handling with a **BAUGHMAN HI-SPEED BELT AND BUCKET ELEVATOR!**

Put loose, free-flowing materials aloft easily and speedily ... cut down costly handling time.

Baughman Hi-Speed Vertical Belt and Bucket Elevator is *ever* ready at the flick of a switch to elevate sand, gravel, crushed rock, limestone, chat, cinders, egg and stoker coal, etc., aloft at better than ton-a-minute speed.

Tailored to meet ANY HEIGHT REQUIREMENT

By coupling standard 10-foot sections together (on your order) we quickly furnish a Baughman Hi-Speed Elevator tailored to your particular requirements. Constructed of rugged, durable high tensile alloy steel ... 30% lighter ... 17% stronger ... 5 times more rust resistant.

UNLOAD CAR AND CHARGE ELEVATOR IN ONE CONTINUOUS OPERATION!

HEAVY DUTY TROUGHED BELT UNDER-TRACK UNLOADER

Primarily designed for large users with semi-permanent trackage setups. Extends beyond rails on far side of car; collects material from under entire car width. Synchronized speeds of Car Unloader and Bucket Elevator keep flow smooth and even with no choking or overloading.

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BAUGHMAN

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Want Safe, Easy Pulling?

There's a **COFFING**

SAFETY-PULL HOIST

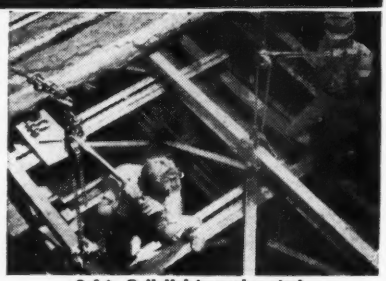
(RATCHET LEVER TYPE)

FOR EVERY JOB

You'll get more work done—faster and with greater safety—when you use a Coffing Safety-Pull Ratchet Lever Hoist for lifting, pulling or load binding. The Safety-Pull is simple in design and extremely easy to operate—yet durable and rugged in construction to handle heavy duty jobs day after day. Choose the hoist to meet your specific needs from the nine models available—with capacities from ¾ to 15 tons! You'll be ahead on time, on manpower . . . on safety.

SEND FOR BULLETIN DRL-5

OTHER COFFING PRODUCTS — Electric Hoists • Differential Hoists • Hoist-Jacks • "Mighty-Midget" Puller • Spur-Geared Hoists • Load Binders • Trolleys.



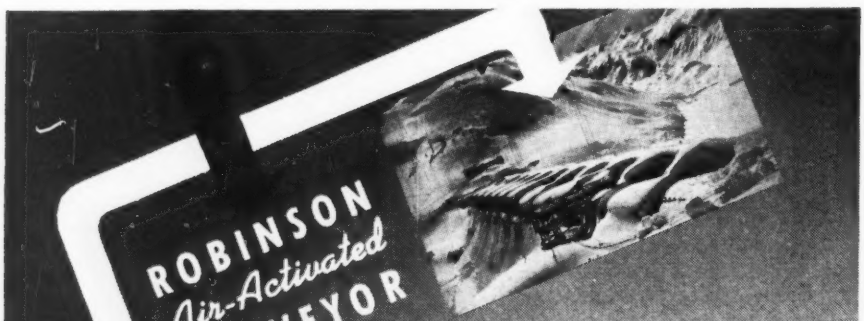
Safety-Pull Hoists moving steel inverts with safety and ease

Why COFFING Is the *Better Hoist*

- Hooks of drop forged, heat treated steel.
- Dual ratchet and pawl assembly for maximum safety.
- Replaceable "Safety-load" handle will bend before any other part of the hoist gives.
- Handle is reversible—Hoist operates in any position.
- Every model factory tested to 100% over rated capacity.

THE COFFING HOIST COMPANY

DANVILLE, ILLINOIS



ROBINSON *Air-Activated* CONVEYOR

THE CEMENT CONVEYOR FOR JOBS LIKE THIS

Here's a dam job 8,000 feet high in the mountains — holed in for the winter. Not far below it is another being built under almost identical conditions and *in this second dam* a Robinson Air-Activated Conveyor is being installed.

Perhaps you will be interested in the reasons which led to its selection by the contractor.

1— It conveys cement with low volume air, thus minimizing the load on the compressor — an important factor at an exceptionally high altitude.

2— Water is removed from the air in the Robinson System, thus preventing pipe encrustation.

3— There are no continually moving parts such as screws and feeder mechanism to get out of order and thus cause high maintenance...another important point "off in the hills."

If you have a bulk "cement" transporting problem, the Robinson Air-Activated System may be just what you need. Tell us about it.

Represented in England by Shaw-Knox, Ltd. London

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ROBINSON Air-Activated **CONVEYOR SYSTEMS**

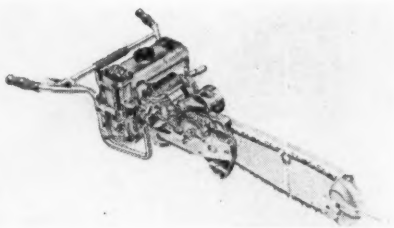
Division of MORSE BOULGER DESTRUCTOR CO.

Representatives in Principal Cities

211-C East 42nd Street • New York 17, N. Y.

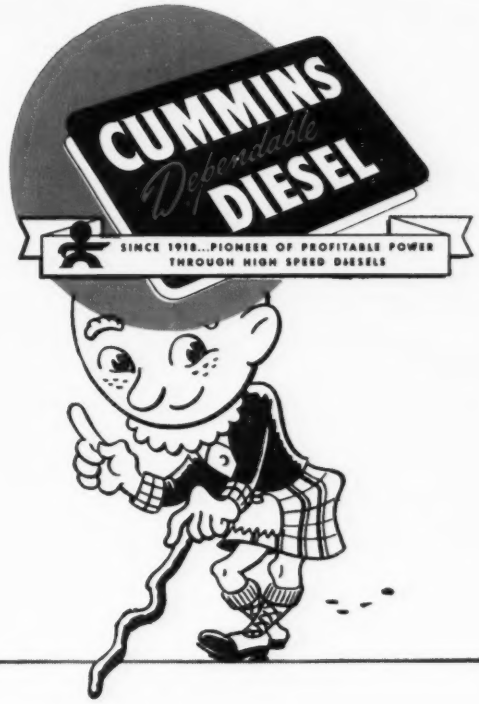
TRUCK TRACKS—Conversion units called Truck Tracks are designed to add tractor performance to conventional single and tandem-axle trucks equipped with most standard dual tires. Pads are made of drop-forged steel alloy. Fitting is done by adding or removing pads and linkage. Every pad has a master adjustment to assure proper track tension. Connecting the pads is a cadmium-plated chain of heat-treated high tensile steel. These conversion units are designed to permit effective hauling under mud, snow and desert conditions which stall ordinary wheeled vehicles. Mounting the tracks is claimed to be a simple operation requiring only 10 min.—**P. & G. Supply Co., 615 S. E. Market St., Portland 14, Ore.**

ANTI-FREEZE—Freezex is a blend of super-refined alcohols to meet requirements of modern automotive cooling systems. Chemical additives prevent rust and corrosion of metals in cooling system and damage to rubber hose. Has high boiling point. —**Speco, Inc., 7308 Associate Ave., Cleveland, Ohio.**



CHAIN SAW—Powered by 5-hp. gasoline engine, saw is available in blade lengths of 20, 36, 48 and 60 in. Lightweight magnesium die-cast engine has full-swivel bevel-gear transmission. Weighs only 45 lb. complete with 20-in. blade and chain. Controls are grouped in compact panel for simplified operation. Ripcross chain, easily sharpened in field, crosscuts or rips with equal ease. New magneto provides superhot spark for instant starting and recoil starter is completely kickproof. Each saw is supplied with a full-length guard plus an auxiliary handle for two-man use.—**McCulloch Motors Corp., 6101 W. Century Boulevard, Los Angeles 45, Cal.**

Cummins Diesels Save Fuel



Compare the cost! **Operate a Cummins Diesel alongside other engines—diesel, gasoline, or butane—then check your fuel bills. Here's what our customers report:**

Annual Savings: $2620.00

Yearly fuel costs for a Cummins-powered truck used on an off-highway haul, consisting of three 22-mile round trips per day, are $2620.00 less than the fuel costs for a gasoline-powered truck used on the same haul. That's because the Cummins-powered truck shows a daily fuel cost of $3.47 against $13.55 per day for the gas job.

Annual Savings: $1138.80

Yearly fuel costs for a Cummins-powered earth mover on a multi-million-yard earth-moving project are $1138.80 less than the fuel costs for an earth mover powered by another make of diesel and doing similar work. That's because the Cummins-powered unit, while making more trips and carrying heavier loads, uses only 25.7 gallons of fuel per shift against 33.5 gallons per shift for the other diesel.

CUMMINS ENGINE COMPANY, INC., • COLUMBUS, INDIANA

SYNTRON

100% Self-Contained
Gasoline Hammer

PAVING BREAKERS

No Compressor
No Hose
No Battery Box
No Cable

BUST Concrete
CUT Asphalt
DIG Shale, Clay
TAMP Backfill

Powerful, hard-hitting tools that will pay for themselves again and again in money and time saved.

See your equipment dealer, or

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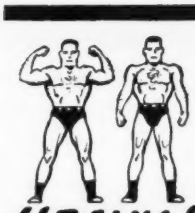
SYNTRON CO.
500 Lexington, Homer City, Pa.

TWO NEW CRUSHERS—Giant-size portable primary crusher, No. 153PR, has a 3042 overhead eccentric jaw crusher with 42 ft. x 14 in., 3-chain apron feeder, mounted on a 3-axle chassis equipped with twelve 12.00 x 20 pneumatic tires. A 30-ft. x 25 in. built-in conveyor delivers the crushed material over the front end of the plant. The over-all length of the plant is 40 ft., 6 in. Weight without "on plant" power unit is about 79,000 lb. Power required is 125 hp., continuous. The 4309 secondary crusher consists of a triple roll crusher with feed hopper and delivery conveyor mounted on a chassis equipped with eight pneumatic tires. The three rolls give a double pass of the material, thus greatly increasing the stage of reduction obtainable from a single unit. A feature is the positive gear drive using chrome-molybdenum star gears which provide proper tooth contact for any adjustment of the rolls. The plant, without power unit, weighs about 40,000 lb.—**Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.**

MOTOR TRUCKS REDESIGNED—Four-Wheel Drive Model YU re-engineered to produce greater driver comfort, ease of driving, serviceability and adaptability to a wide variety of applications. Rated at 28,000 lb. gross vehicle weight, new model features a 142-hp. motor rated at 2,250 rpm. and is equipped with 5-yd. dump body. Standard wheelbase of 150 in. is listed, with options up to 182 in., and body space back of cab from 121 to 190 in. Five-speed transmission contains helical gears in all forward speeds for quiet operation and easy shifting. Cab is of all-steel welded construction. Vacuum-operated center differential lock permits locking of differential, providing positive power to both front and rear axles for climbing steep hills and plowing through mud or sand. New auxiliary transmission, optional on Model YU, provides ten speeds forward and two reverse. Side panels of hood can be lifted for simple servicing. For major motor overhaul hood top may be removed by taking out four bolts, leaving entire motor open to the service man. —**Four-Wheel Drive Auto Co., Clintonville, Wis.**



TWO NEW STRONG MEN FOR HEAVY HAULING

Built with still more guts than our Standard Model SELF-LOADING FLOAT, which is rated as 50,000 lbs. and regularly walks off with much more, these new, huskier models are rated at

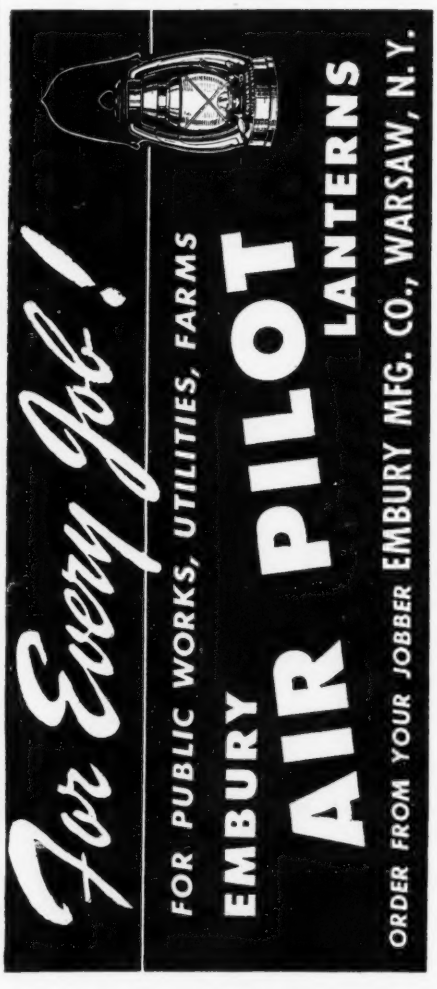
75,000 LBS. - 100,000 LBS.

They are built to stand any test your common sense puts them to. You'll want to know more about these new huskies, built as only Hobbs builds Trailers.

Write, wire, phone for details.

HOBBS MFG. CO.
Fort Worth, Texas, Dept. M

Sales and Service at
Houston, Lubbock,
San Antonio, Dallas
Fort Worth



Another typical COR-TEN job...

A new *BIG CAPACITY* Dump Trailer with the "guts" to work at top capacity

McCABE-POWERS engineers knocked off *three* birds with one stone when they built their new 25 cu. yd. tandem-axle trailer with U·S·S COR-TEN. They safely eliminated useless dead weight. They obtained big payload capacity—up to 50% greater than the usual single axle trailer. *And*—they added extra toughness and extra strength to easily absorb the grief of heavier loading and high speed operation.

As a result this Powers dump trailer has exactly what it takes to give *maximum* performance. It not only does a job in two trips instead of three, but it has the rugged durability to operate at full capacity—and to keep on doing so.

This highly efficient unit is typical of the big-capacity equipment that is bringing new standards of performance to highway and off-the-road hauling. You'll find COR-TEN used in a large percentage of such construction.

And that's not so surprising. For in U·S·S COR-TEN, both builders and users of heavy-duty, earth-moving equipment have found a structural material that, wherever used, insures maximum capacity and maximum durability combined with minimum weight and minimum cost. Our engineers have had 13 years' experience helping others obtain these highly desirable results—they welcome the opportunity to do the same for you.

BEAT THE STEEL SHORTAGE—use steel that DOES more!

By replacing carbon steel with U·S·S COR-TEN or MAN-TEN where economically applicable, you can:—(1) Produce as many as one-third more units from every ton of steel used. (2) Make better products—lighter, longer-lasting and generally more profitable to the user. (3) Satisfy more customers. (4) Get these benefits at little or no increase in cost per unit.

To help you use U·S·S High Strength Steels to advantage in your products, immediately—and with the least change in shop methods—we have a special staff of metallurgists and engineers thoroughly familiar with what these steels can do. Phone, wire or write our nearest office.

Manufactured by the McCabe-Powers Auto Body Co., St. Louis, Mo. Both the sturdy one-piece trailer frame and the strongly reinforced body shell are fabricated of all-welded high-strength U·S·S COR-TEN throughout.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S MANGANESE-NICKEL-COPPER

8-1819

UNITED STATES STEEL

PRE-FABRICATED CONCRETE FORMS

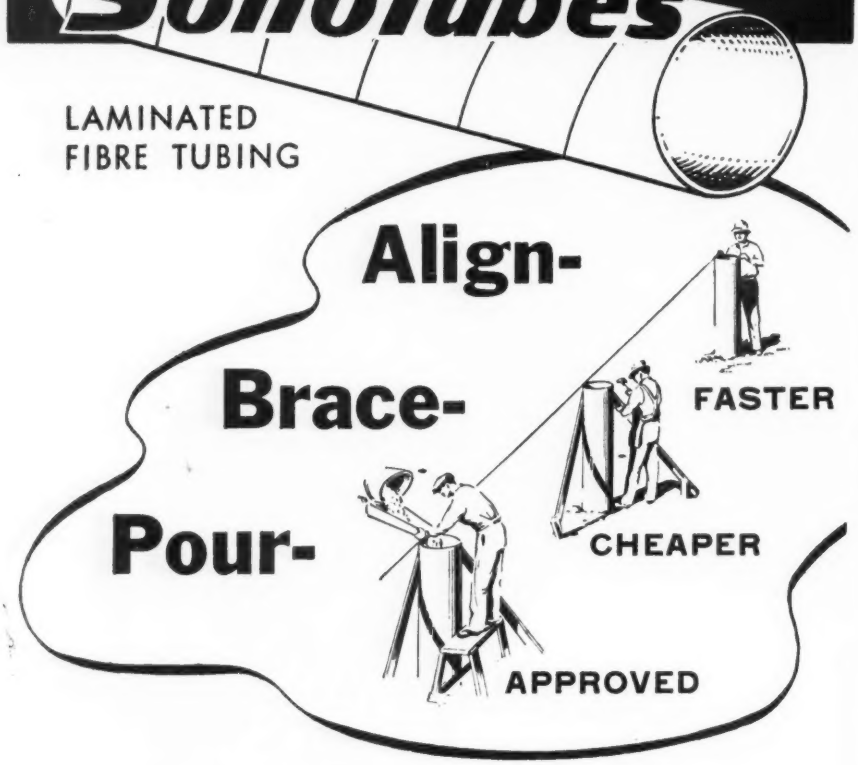
FOR PIERS AND COLUMNS

PILES • CULVERTS • WEEP HOLES

OUTFALL SEWERS

Sonotubes

LAMINATED
FIBRE TUBING



Hand saw to lengths (desired heights) on the job.

LENGTHS UP TO 24 FEET

INSIDE DIAMETER					
8"	9"	10"	11¼"	12"	13½"
SQUARE INCHES					
50.26	64	78.54	100	113.1	144

IMMEDIATE DELIVERY

SONOCO PRODUCTS COMPANY

HARTSVILLE, S. C. MYSTIC, CONN.

ROCKINGHAM, N. C. GARWOOD, N. J. LOWELL, MASS.

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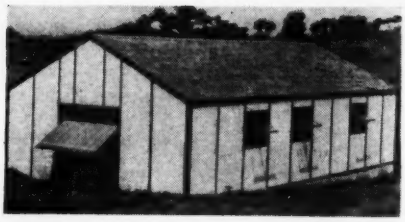
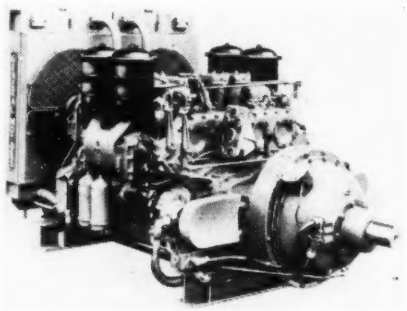


INSULATED STEEL FRAME BUILDING — "Packaged" building provides insulation as an integral part of structure by combining steel framing with Celotex Cemesto structural insulation panels claimed to be equal in insulation value to a common brick wall 18 in. thick. Wide variety of sizes and combinations of windows and doors is available. Steel framing and Cemesto panels are accurately cut to size and all parts are numbered to make job of assembly simple and quick. Framework is of alloy-steel angles and channels. Panels comprise insulation board core to which cement-asbestos board has been laminated on both sides. A moisture-proof, vapor-resistant bituminous adhesive bonds all layers to form an integral unit. Steel-Bilt buildings are permanent structures but can be dismantled and moved to a new location and reassembled. — **Steel-Bilt Construction Co., Inc., Bridgeville, Pa.**



TORQUE CONVERTER — Torque converter and fluid coupling unit is specifically engineered to the General Motors Series 71 two-cycle diesel engine. Consists of four major elements: pump, turbine and two stators. Unit produces torque multiplication of up to 4 to 1. Easily adaptable to a wide range of construction and roadbuilding machinery. Integrated power plant occupies no more space than the same engine equipped with conventional clutch and power take-off. This accomplishment is made possible by employing the flywheel as a working component of the torque converter assembly. Available in engine ratings from 75 to 300 hp. Outstanding characteristic is ability to pick up load with maximum lifting power and shift automatically from torque converter to fluid coupling in higher speed range.—**Detroit Diesel Engine Division, General Motors Corp., 13,-400 W. Outer Drive, Detroit 28, Mich.**

This feature alone can pay for

The BELL Prime Mover
In a single season the Prime Mover's sturdy blade saves enough on equipment and labor to pay for itself . . . keeps walks and drives free from snow . . . clears away sand, cinders, and other debris.

★ PATENTS & T.M. REG. PENDING. COPYRIGHT, 1948

FEATURES:

- takes half-ton loads up 20% grades.
- bucket holds 10 cubic feet...18 with sideboards.
- gear driven . . . no belts or chains.
- clutch, engine, transmission all run in oil.
- fully enclosed engine protected against dirt and moisture.
- half-ton platform body available; also 50-inch "baby bulldozer" blade.
- switch from bucket to platform without tools...in less than a minute.
- turns in its own length (63½"); width only 31½".
- 3-gallon tankful of fuel gives 8 hours continuous service.

A PRODUCT OF

BELL *Aircraft* CORPORATION

● You don't need costly tractors and expensive labor gangs to clear away snow this winter. A Bell Prime Mover, with its 50-inch blade, can do the job for far less cost. And that isn't all...

When snow plowing is done, the Bell Prime Mover can be readied for other jobs in just a few minutes. With its big bucket, it becomes a *GIANT wheelbarrow*. With its steel platform, it becomes a *half-ton utility truck*. It pays *extra* dividends on scores of year-'round applications.

A nationwide network of distributors and service depots is available for demonstration of the Bell Prime Mover on such jobs as pouring concrete; moving packaged goods and supplies in warehouses and loading platforms; plowing snow or sand . . . doing any light scraping or grading.

For detailed information and the name of a nearby distributor, please mail the coupon . . . today.

3rd BOOTH NO. 129 ★★★★ NATIONAL MATERIALS HANDLING EXPOSITION ★ PHILADELPHIA CONVENTION HALL JAN. 10-14, 1949

BELL AIRCRAFT CORPORATION
Post Office Box 1C-12, Buffalo 5, N. Y.

Please send me complete data on the Bell Prime Mover . . . and the name of nearest distributor.

Name .....

Company .....

Address .....

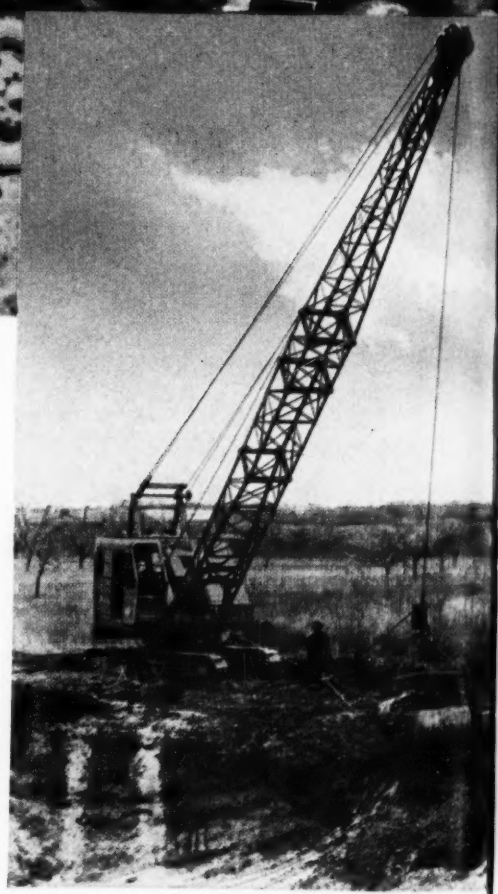
City, Zone, and State .....

WHERE P&H Speed PAYS OFF!

You can't get away from it—time is money the moment your excavating equipment starts on the job. Where you can save time, you can save money. Think of it as an extra margin of profit for you.

Investigate performance in terms of speed. Examine the machine functions where it is most vital. Study basic design. Look into specific operating advantages. And remember that dependability is a factor of first importance because it means freedom from costly lay-ups.

Your critical comparisons will reveal the many added values built into P&H Excavators.



●P&H originated all-welded excavator construction. Used throughout both upper and lower structures, as well as for front end attachments, welded alloy steels increase production by eliminating excess weight — reducing breakdowns to a new minimum.

P&H Excavators are built in sizes from 3/8 cu. yds. with gasoline, Diesel, or electric po
Ask for bulletins on the size that interests

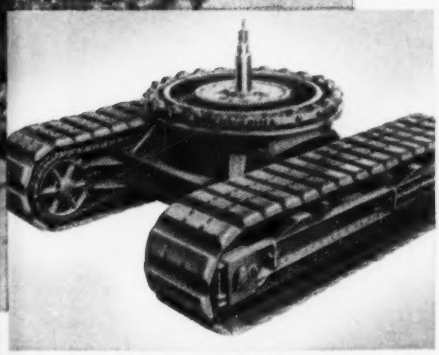
P&H EXCAVATORS
4494 W. National Ave.
Milwaukee 14, Wisconsin

HARNISCHFEGER CORPORATION

EXCAVATORS · ELECTRIC CRANES · ARC WELDERS · P&H · HOISTS · WELDING ELECTRODES · MOTORS

P&H added speeds are added values

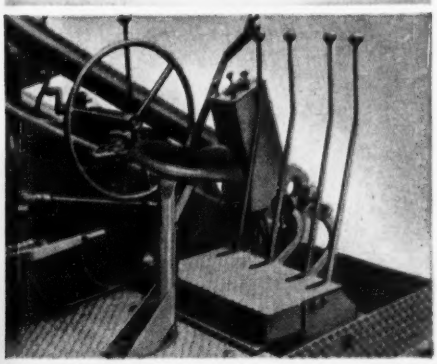
Every detail of P&H design and construction has been engineered to cut costs on the job — now and for years to come. These are practical values which have been proved on thousands of jobs. Following are a few typical P&H features that contribute to lower job costs.



1

TRUE TRACTOR TYPE CRAWLERS

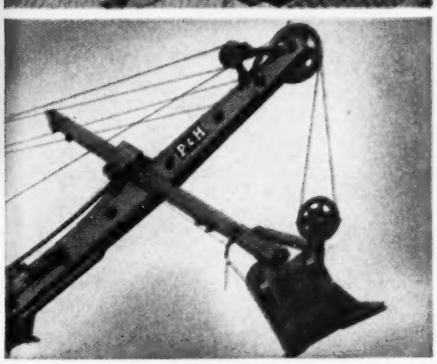
— the most efficient traction ever put on an excavator. Travel is smoother, faster; steering is easier, maintenance is far less. Independent holding brakes cut move-up time 75%.



2

HYDRAULIC CONTROL

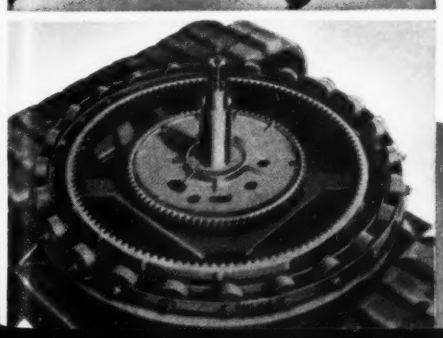
— provides the quicker response that means faster digging, greater production. It is easier on both the machine and the operator.



3

PLANETARY CHAIN CROWD

— provides full power on every bite, snappier dipper action, rapid reversal. Crowd chain outlasts 25 to 30 crowd cables. There's far less maintenance.



4

LIVE ROLLER CIRCLE

— distributes weight of revolving frame evenly over the roller path with a minimum of friction.

5

SPLIT SECOND CLUTCHES

assure velvety smooth, shock absorbing action that allows constant and precise control of the load. Operation is easier.

6

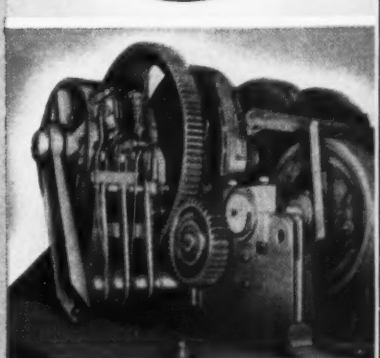
HYDRAULIC BRAKES

are full floating type with full wrap. 30% greater braking surface provides greater holding power, smoother action, longer wear.

7

BOOM HOIST

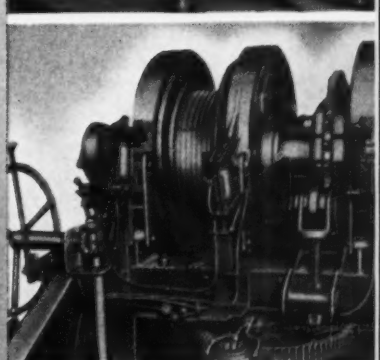
adjusts boom quickly to any working angle. Operation is triple safe. Crane boom and load may be raised together or independently. Load lowering is unexcelled for speed and accuracy.



8

P&H's MAIN DRUM ARRANGEMENT,

combined with front end attachments, makes it easier and quicker to change over from one type of service to another, such as for shovel, dragline, crane, trench hoe, pile driver, etc.



★
★
★

Why not learn about all the added values P&H offers the excavator buyer? See your nearest P&H Dealer or write us for complete information.

Built to take a 10-ton load off your mind!

Wheeling a 10-ton load is as routine as easing over a 10-inch bump to this big International six-wheeler!

That's because it's packed with power from bumper to tailgate. It's built to make tracks through sand, muck, and mire, to fight its way up grades that would knock the heart out of an ordinary truck.

Performance like this is a habit with Internationals. There are 22 basic models, eight of them six-wheelers—each a champion in its own right.

Whether their gross weight rating is 90,000 or 4,400 pounds, they all rate tops in driver advantages as well as performance. Drivers swear by 'em because they do a good job fast and take a beating without giving the driver one.

And that's not all. You'll find yourself swearing by 'em when you discover how easy they are to service. Thousands of International Dealers and 170 company-owned Branches—coast to coast—offer you the nation's largest exclusive truck service organization. Whether at home or 3,000 miles away, you can get International service, precision-engineered parts, factory-built exchange units and whatever your International needs . . . quickly and at low cost.

So, whether you haul gravel, granite, sand or cement—it will pay you to find out what the "Standard of the Highway" can do for you. The sooner you do this, the quicker you will start getting more hauling miles out of every trucking dollar.

Tune in James Melton and "Harvest of Stars," CBS, Wednesday Evenings

INTERNATIONAL TRUCKS

MOTOR TRUCK DIVISION • INTERNATIONAL HARVESTER COMPANY • CHICAGO

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

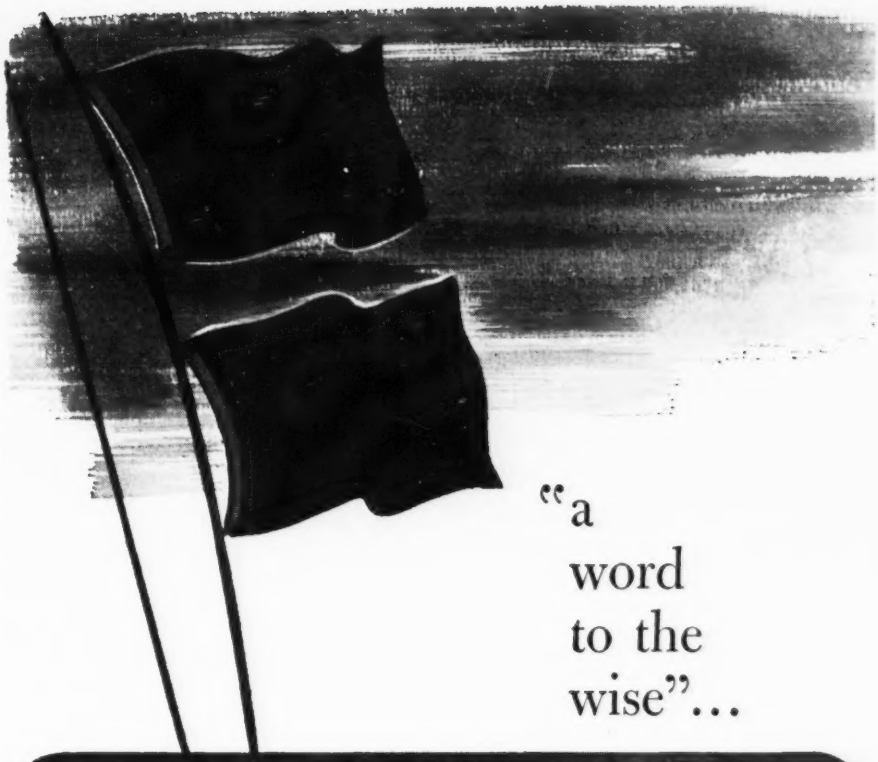
GEAR TESTING—10-p. folder describes various models of Parkson gear tester in sizes ranging from 4½- to 36-in. capacity. It contains valuable information for anyone who uses, makes, buys or specifies gears. **—George Scherr Co., 200 Lafayette St., New York 12, N. Y.**

BULLDOZING FOR PROFITS—This is the title of a new booklet showing some of the many uses of the bulldozer—including backfilling drainage ditches, and land clearing and leveling.**—Caterpillar Tractor Co., Peoria 8, Ill.**

BITUMINOUS DISTRIBUTORS — An interesting bulletin gives a complete description of an all-purpose heavy-duty bituminous distributor, with detailed information about the pump, tank, insulation, heating system, engine, spray bar, spray nozzles, etc.**—Kinney Mfg. Co., Boston 30, Mass.**

SHOVEL LOADER—(Folder) Model 15 transport rocker shovel has 6-cu.ft. capacity bucket and rocker-arm loading action.**—Eimco Corp., Salt Lake City 8, Utah.**

THERMAL INSULATION — The simplified physics of thermal insulation is discussed in a 32-p. manual by Alexander Schwartz. It contains heat transfer, condensation, vermin, mold, irradiant heating, and other factors involved in the study of insulating values. Mr. Schwartz adds to his own findings and extensive research, the reports and discussions of outstanding authorities and laboratories. Although a complete and exhaustive treatment of textbook character, the manual is simply and clearly written and even the most technical subjects have been made easy to grasp. Numerous charts and diagrams give additional information.**—Infra Insulation, Inc., 10 Murray St., New York, N. Y.**



"a word to the wise"...

STORM WARNINGS ARE FLYING

Cold and wet weather ahead means *you* will need tarps—and when you need them...you want them PRONTO!

Send out your S. O. S. to your dependable Wenzel distributor. He will fill your tarpaulin requirements immediately from his complete stock.

For cold and rain ... **SPECIFY** ***Wenzel "Para" Waterproofed Tarpaulins.***

Processed with a genuine paraffin base—Para Tarpaulins contain no oil or clay. They are air-dried ... never exposed to damaging heat. Para Tarpaulins are completely waterproof, stronger and tougher ... to give you PLUS-SERVICE.

For added Fire-Protection...**SPECIFY** ***Wenzel Fire and Water Resistant Tarpaulins.***

These new, high-quality Tarpaulins are processed by a new-improved method. Guaranteed to give you longer service and greater protection against fire-loss.

Full breaking strength — guaranteed new ...not Government Surplus. Duck woven... treated ... after Sept. 1, 1948. No risk of fabric weakening due to long storage and prolonged chemical action.

H. WENZEL TENT & DUCK CO. ST. LOUIS, MISSOURI

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Trevor Corp., Buffalo
R. B. Wing & Son Corp., Albany
NEW JERSEY
Dale & Rankin, Inc., Newark
WASHINGTON, D. C.
Hovey-King Co.
Hudson Supply & Equip. Co.
MARYLAND
General Supply & Equipment Co., Inc., Baltimore
NORTH CAROLINA
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INDIANA
Standard Equipment & Supply Corp., Hammond
MISSOURI
Brown-Strauss Corp., Kansas City
Machinery & Supplies Co., Inc., Kansas City
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MISSISSIPPI
Contractors Material Co., Inc., Jackson
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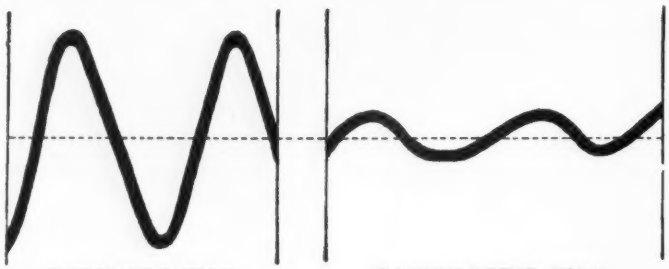
For 61 Years . . . America's Foremost Manufacturer of Quality Tarpaulins

Through Better Use of Energy

ROCKMASTER

Stopped Objectionable Vibration on This Job



ORDINARY WAY | **ROCKMASTER WAY**

An 11 hole blast using 3300 lbs. of dynamite fired by ordinary methods produced this reading on a seismograph used to record the vibration.

This ROCKMASTER blast used 12 holes and 3575 lbs. of dynamite, yet the seismograph reading showed only one-third the amount of vibration.

The vibration record of two comparable blasts, one fired by the Rockmaster blasting system and one by ordinary methods, is shown above. It is easy to see how important this reduction in vibration is to quarries, construction jobs and coal stripping pits that operate near residential communities.

and **ROCKMASTER** cuts costs, too!

The Rockmaster system splits up a big blast into smaller ones, staggered milliseconds apart. That's how it controls vibration. And that's why it also achieves these other important money-saving results!

1. ***More rock ready for the shovel.***
2. ***Better fragmentation***—less secondary blasting.
3. ***Far less "back-break"*** in quarries. Less pulverizing of coal in strip pits.
4. ***Wider spacing of drill holes*** can frequently be used, saving drilling costs and explosives costs.
5. ***Better control of "throw."***

Call in the Atlas representative today. He will be glad to give you the benefit of Atlas pioneering in milli-second delay blasting.

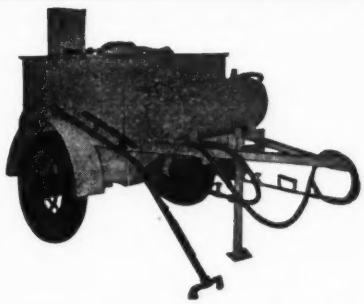
"ROCKMASTER"—Trade Mark
Manasite: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • ***Offices in principal cities*** • ***Cable Address—Atpowco***

Shunk Snow Plow and Ice Removal BLADES
Proved record of superior performance. Made of specially developed steel to withstand severe service conditions.
FOR ALL TYPES AND MODELS OF SNOW PLOWS
Various widths, lengths, thicknesses--flat or curved--standard or special--punched ready to fit your machine.
SHUNK SAW-TOOTH ICE BLADE
Amazingly effective. Thoroughly breaks up and removes heavy, slippery ice and snow formations. Replaces all types of snow plow blades or maintenance units. Write for Bulletin and name of nearest Distributor.
Shunk
MANUFACTURING COMPANY
ESTABLISHED 1854
BUCYRUS, OHIO,



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FOR ASPHALT AND TAR
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WIRE ROPE—(188-p. Catalog) Includes three sections dealing with characteristics of wire rope, types of wire rope for specific industries, and the care and handling of wire rope. Three indexes permit quick reference to contents. Text matter is supplemented by charts, tables, drawings and photographs. Publication of this catalog marks the 50th anniversary of this wire rope manufacturer. Of particular interest to construction men are diagrams and descriptions of typical wire-rope applications on power shovels, trenchhoes, dragline excavators, clamshell cranes, overhead traveling cranes, derricks and shaft head frames. Another section deals in detail with a wide range of wire rope slings and fittings. This publication constitutes a valuable reference manual on the general subject of wire rope.—**Colorado Fuel and Iron Corp. (Wickwire-Spencer Steel Div.) Palmer, Mass.**

HEAVY-DUTY BUCKET LOADERS—(12-p. pamphlet) Gives principal specifications of various models of Haiss heavy-duty bucket loaders equipped with integral swivel belt-conveyor discharge, and describes and illustrates with large pictures advantages of various applications of this type of materials loading. Circular is identified as No. SBC-1048. — **Pettibone Mulliken Corp., 4700 W. Division St., Chicago 5, Ill.**

LIQUID PRESERVATIVE—(Folder) Tells about Rot-Stop, applied by brushing, spraying or dipping to preserve and protect wood, rope and canvas.—**Rockford Paint Mfg. Co., Rockford, Ill.**

RUBBER TIRES — (63-p. booklet) Titled "The Story of the Tire," this publication presents a brief history of the development and manufacture of automobile tires by Goodyear. Chapters cover such subjects as the growing of natural rubber, synthetic rubber development, producing tire fabric, manufacturing automobile tires, inner tube production, tire development, research and marketing tires.—**Goodyear Tire & Rubber Co., Akron 16, Ohio.**

CONTRACTORS' CENTRIFUGAL PUMPS—(16-p. bulletin) Describes self-priming feature of line of contractors' centrifugal pumps, ranging in sizes from 2 to 8 in. Gives specifications and ratings, together with information on how to select the correct size of pump, including tables to assist in figuring pumping requirements. — **Gorman-Rupp Co., Mansfield, Ohio.**

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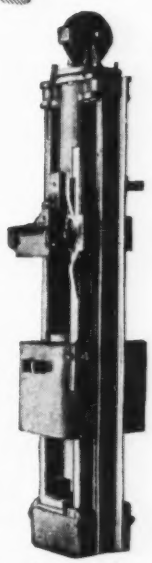

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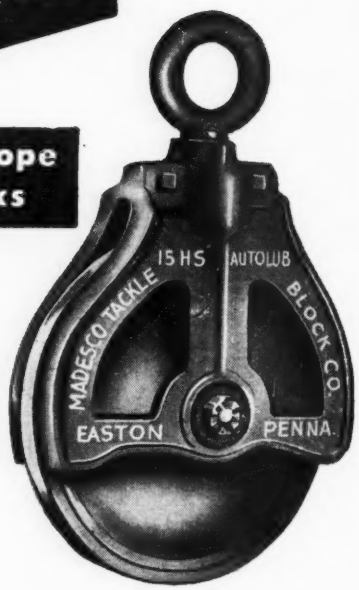

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GENERAL PURPOSE PUMPS—A 6-p. illustrated booklet contains descriptions of "Bilt-on" pumps for all classes of medium and low head service. "Bilt-on" is a single suction, single stage pump coupled to an induction motor to form an integral unit, which can be mounted either vertically or horizontally. It can be used on a hand truck or suspended from a sling for portable use.—**Byron Jackson Co., Pump Div., Terminal Annex Box 2017, Los Angeles 54, Calif.**

EXPLOSIVES PRODUCTS — (64-p. booklet) Deals with industrial and mining explosives and includes catalog of company's explosives and their specifications and qualities, and recommended use. Also contains useful information on wire resistance and distance tables, comparisons of weight, strength and density, burden on bore holes, suggestions for using electric blasting caps, calculations for field use, and a list of 63 safety and handling "Dont's."—**Olin Industries, Inc., East Alton, Ill.**

ANTI-FRICTION BEARING MAINTENANCE—(19-p. manual) Provides information on conservation of anti-friction bearings to assist repair men in shops and field organizations. Tells how new bearings can be protected from damage, and how usable bearings can be removed from worn-out equipment, properly cleaned and installed for further use.—**Anti-Friction Bearing Manufacturers Association, Inc., 60 E. 42nd St., New York 17, N. Y.**

GARDEN TRACTORS—(8-p. folder) Describes and pictures small two-wheel garden tractor in two models, Model F. 4½ hp., and Model D, 1½ hp. Lists a wide range of attachments including lawn-mower, snow-plow, sickle bar, disk harrow and adjustable cultivator. Shipping weights of the two models are, respectively, 315 and 175 lb. Tractors ride on rubber-tired wheels.—**Waterbury Tool Div., Vickers, Inc., East Aurora St., Waterbury 91, Conn.**

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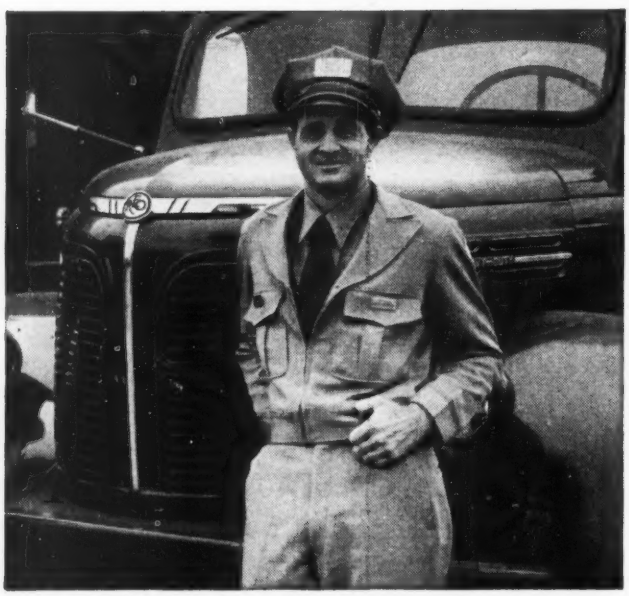

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STEEL PIPE AND PILING—A 4-p. composite folder describes pipe, steel sheet piling, rails and track accessories. Separate folders are listed on each product for more specific information.—**L. B. Foster Co., Electric Bldg., Houston 2, Tex.**

DRY WALL SPECIFICATIONS—Illustrated folder describes processes for waterproofing both above-grade interior wall surfaces and exterior mortar joints of new buildings.—**Western Waterproofing Co., Syndicate Trust Bldg., St. Louis 1, Mo.**

CONCRETE MIXTURES MANUAL—(70-p. booklet) "Design and Control of Concrete Mixtures" presents basic information on how to produce quality concrete which should be helpful to every engineer and construction man. The publication comprises 12 chapters dealing with a range of topics including: Fundamental Facts about Concrete; Materials (cement, mixing water, aggregates and admixtures); Design of Concrete Mixtures; Measuring Materials; Mixing Concrete; Field Control Tests; Handling and Transporting Concrete; Placing Concrete; Joints; Curing and Protection; Removal of Forms; Finishing; Special Types of Concrete; Specifications and Tests. Here within the small compass of only 70 pages is a comprehensive summary of essential information for users or designers of concrete. The presentation combines clarity with conciseness, and the text matter is complemented by drawings, tables and photographs. This booklet answers the questions of those seeking how to produce strong, durable concrete by proper selection and proportioning of materials, and how best to transport concrete and place it in forms.—**Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.**

PUMPED CONCRETE PRACTICE—(193-p. booklet) Entitled "Pumpcrete Practice," this publication constitutes a manual of pipeline concreting methods. Publication is divided into two sections, the first giving general information on the Rex Pumpcrete piston pumps, distributing methods, placing costs, mixing plant set-up, concrete data and Pumpcrete data. The second section illustrates and describes typical jobs on which pumped concrete was used. These include bridges, viaducts, buildings, water works and sewage-treatment plants, locks and dams, and miscellaneous structures. This publication constitutes a manual of improved practice in the placing of concrete by pumping through pipe lines.—**Chain Belt Co., Milwaukee, Wis.**

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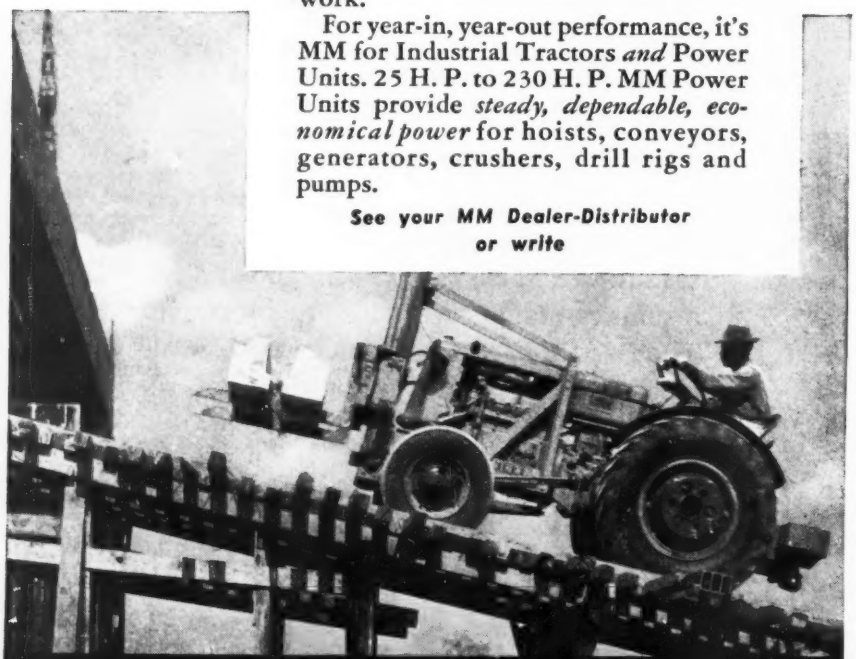

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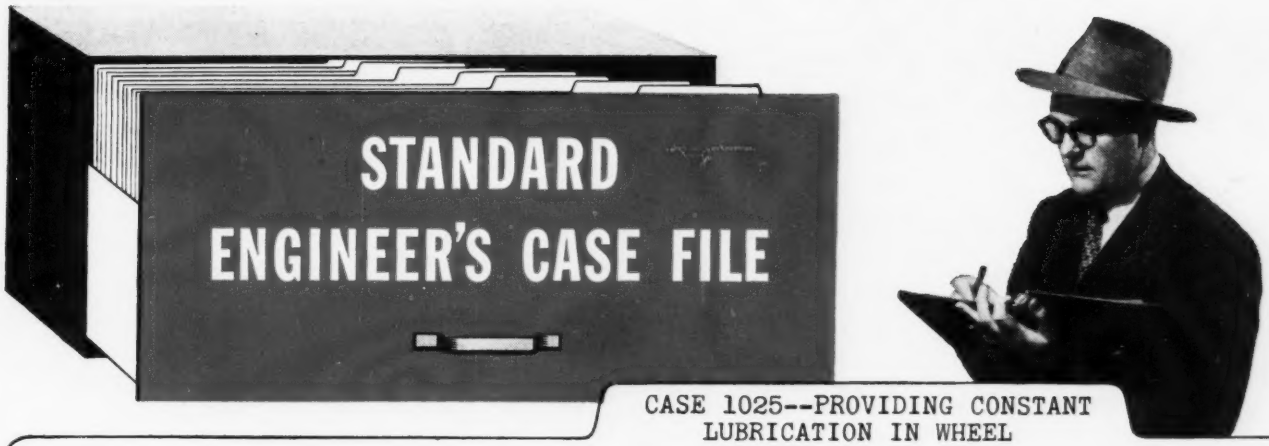
PNEUMATIC GROUTER—A bulletin, describing a simple machine for placing low-pressure grout in tunnels, shafts and foundations, has a door which swings out of the way when charging. Bulletin contains a page article on grouting in general covering such points as its use in dam foundations, shafts, tunnels before lining, back of logging in rock tunnels, back of liner plates in soft ground tunnels, in shield driven tunnels, back of concrete lining, railroad sub-grader, and other uses.—**Robert S. Mayo, Lancaster, Pa.**

HOUSING AMERICA—This is the title of a recently published booklet on mass housing which emphasizes the necessity of adequate utility service planning in housing developments, and directs attention to centralized community heating as one of the essential utility services. The factors of fuel availability and costs are treated. A study of a community development of 15,900 homes includes a detailed engineering analysis of the recommended central heating system, comparing its cost with corresponding costs of individual home heating units. An informative appendix is a resume of some twelve major housing developments and their heating systems.—**The Ric-wil Co., Cleveland, Ohio.**

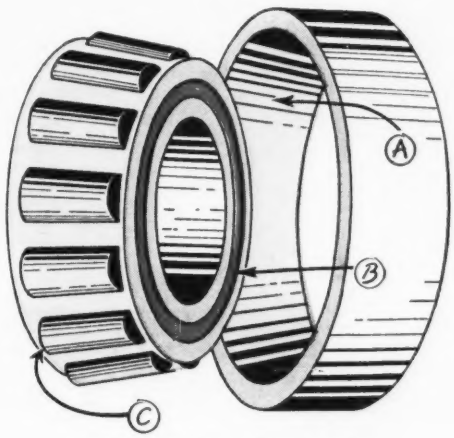
INDUSTRIAL DUST CONTROL—A bulletin of 24 pp. outlines the basic principles of industrial dust control, giving dimensions and capacities of dust filters, which are like multiple vacuum cleaners. More than 100 different kinds of dusts collected are listed. Typical installations are illustrated.—**The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio.**

COLD FINISHED STEEL BARS—An 8-p. bulletin on cold finished steel bars contains a description of the finishing processes, guide to selection, AISI and SAE standard steel compositions, table of average mechanical properties, and a condensed listing of the analyses, finishes and shapes carried in stock.—**Joseph T. Ryerson & Son, Inc., Chicago 80, Ill.**

SOLDER SELECTION GUIDE—A 4-p. publication lists sixteen metals that are most frequently soldered, gives their order of solderability, together with recommendations for the best flux core solder or solder and flux suitable to soldering operations, and also for the flux type most desirable when an external flux is used. Other tables list the physical characteristics of the various Alpha solders.—**Alpha Metals, Inc., 363 Hudson Avenue, Brooklyn 1, N. Y.**



CASE 1025--PROVIDING CONSTANT LUBRICATION IN WHEEL BEARINGS.



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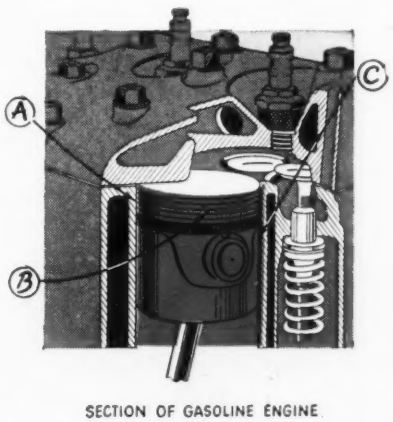

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When gasoline engines were lubricated with compounded RPM Motor Oil, pistons, cylinders, valve stems and other oil-contacted parts remained clear of carbon, gum and lacquer. Wear was minimized and rusting was not a problem. Recommended for gasoline engines. Five grades: SAE 10/10W to SAE 50.

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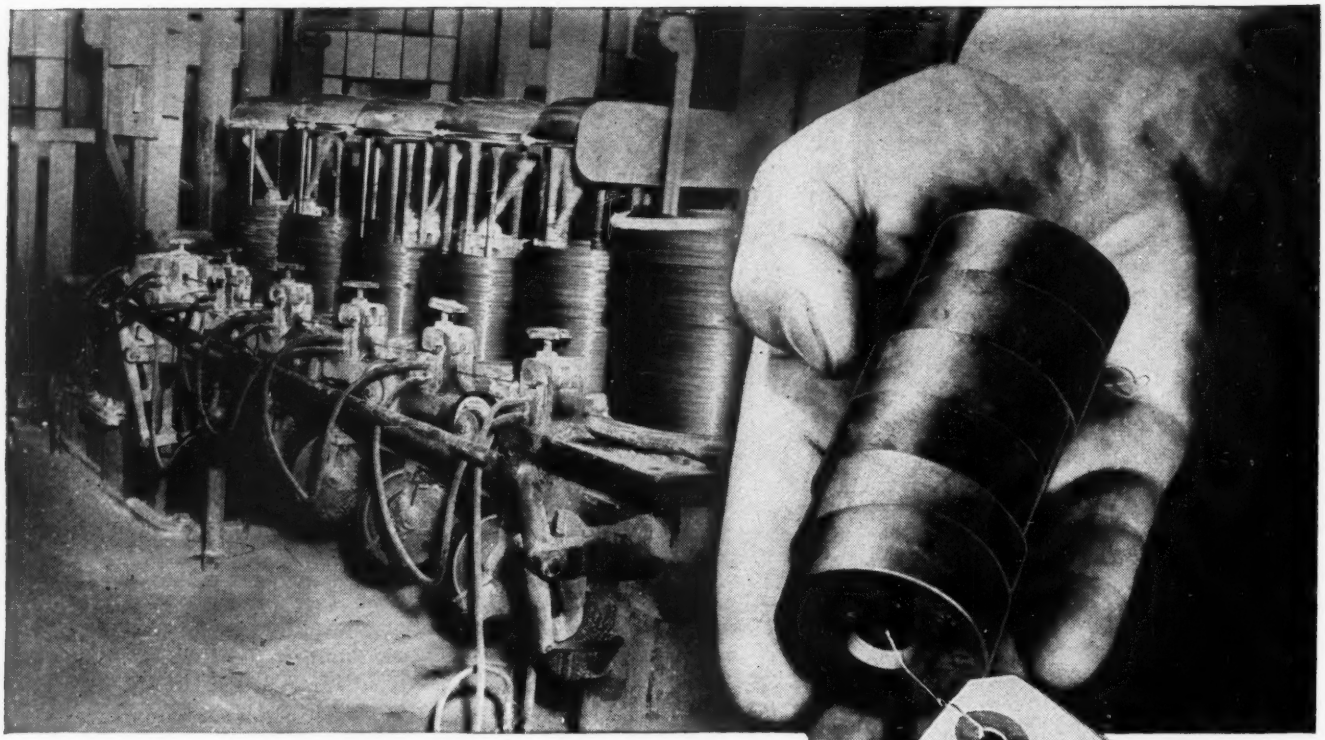

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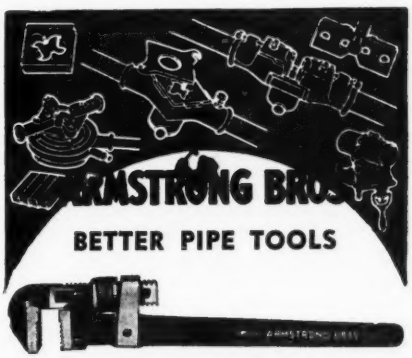

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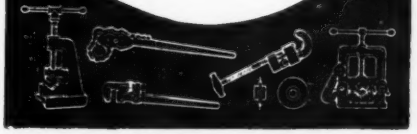

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CONCRETE TESTING MACHINE—Bulletin of 4 pp. gives illustrated descriptions of two cement and concrete testing machines of 90,000- and 300,000-lb. capacities. They were designed primarily to make the tests required by A.S.T.M. specifications. The bulletin describes construction and operation, the weighing and indicating systems, accessories and applications, and includes specifications.—**Baldwin Locomotive Works, Testing Equipment Department, Philadelphia 42, Pa.**

STEEL FORMS—How to use steel forms in poured concrete construction is discussed in a new manual which is primarily an instruction book for engineers, builders, and contractors, but is of interest to anyone connected with construction work where poured concrete might be used. It tells how to erect, maintain, and strip steel forms. It emphasizes the economy and convenience of their use. Methods for difficult situations, the use of walers, edges, wedge clips, inside and outside corners, inserts and outserts, provision for doors, windows, irregularities, are thoroughly covered. Instructions are given for the making of columns, pilasters, columns with irregular outlines or chamfered corners, for wall forms higher or lower than standard units. There are illustrations of the use of Atlas forms in the construction of tunnels, bridges caissons, roads, pipes and sewers.—**Irvington Form & Tank Corp., Irvington, N. Y.**

PIPE SUPPORTS—Among the items listed in this catalog are channel-type and bolt-type spacers, beam clamps, angle connectors, slotted conduit hangers, adjustable swinging hanger flanges, roller supports, steel wall brackets, and many other devices for pipes, conduits and tubing. —**The Kindorf Co., 681 Market St., San Francisco 5, Calif.**

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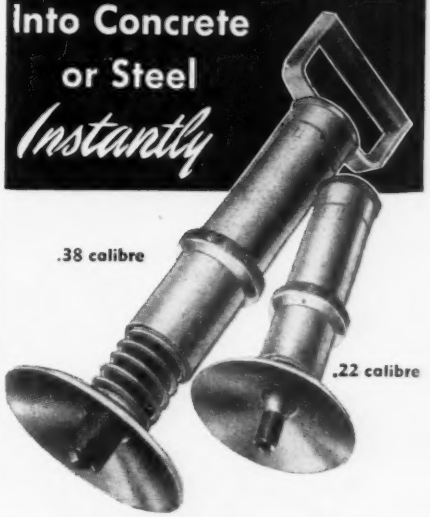

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ALL-STEEL GARAGE DOORS—Instruction folders for all three types of Strand all-steel garage doors have detailed drawings and photographs and step-by-step directions for installation of canopy-type and track-type single doors, and for the double-garage door. These folders are for the guidance of builders, dealers, jobbers and home owners.—**Dept. P-124, Strand Building Products Co., 1710 Buhl Bldg., Detroit 26, Mich.**

CRANES—A bulletin tells all about GarWood cranes which are full-powered in all operations—hoist, boom and swing—with an individual control for each function. Sensitive control and rugged strength make these cranes suitable wherever heavy valuable equipment such as transformers, motors, building materials, cast-iron parts and machinery are to be handled.—**Gar Wood Industries, Inc., Wayne, Mich.**

DIESEL ENGINES—A new 24-p. profusely-illustrated booklet presents in graphic style the design features, specifications and work capacities of six International Diesel engines, from the 39-hp. UD-6 to the new 180-hp., UD-24. Illustrations show the engines stripped, as well as with various attachments. Accompanying performance charts reveal at a glance the peak, intermittent and continuous horsepower, and peak and intermittent torque at different engine speeds, as well as the average fuel consumption with wide-open throttle under intermittent load. A separate "Work it will do" table provides convenient listing of engine capacities in operating rock crushers, generators, hoists, sawmills and pumps.—**Industrial Power Div., International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.**

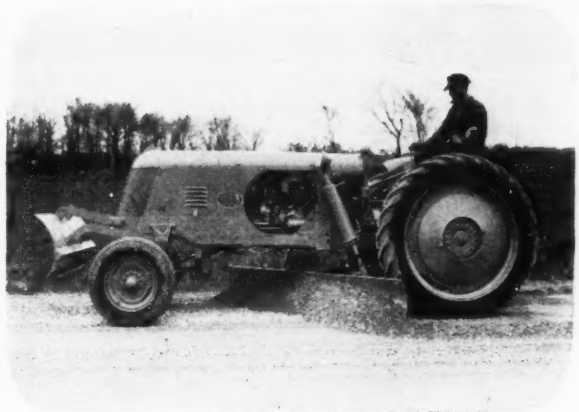
TOURNAPULL AND TOURNADOZER—Two new broadsides have been issued to describe the "B" Tournapull and the "B" Tournadozer. In the former, an overhead cutaway diagram of the machine shows and explains the features of this big earthmover. The latter lists the features of size, power and speed, basic specifications, etc. of the Tournadozer.—**R. G. LeTourneau, Inc., Peoria, Ill.**

STEEL BUILDINGS—There is a 32-p. catalog on Ideco steel buildings outlining the many types and applications of buildings that can be assembled and erected easily from standardized, mass-produced special deep ribbed parts. The principal structural types are self-supporting, rigid frame and mill type.—**International Derrick and Equipment Co., 6315 Pacific, Dallas, Tex.**

A Smart Move

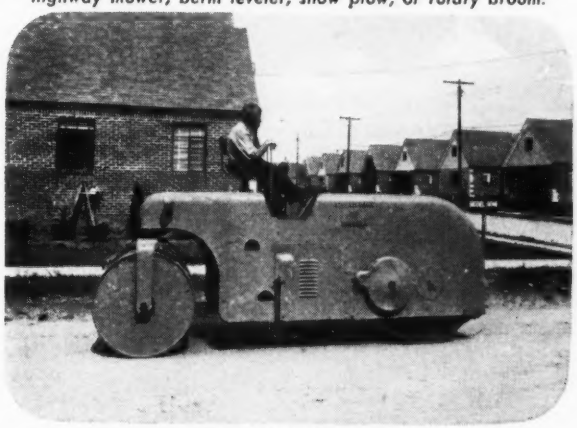
change to

HUBER ROAD MACHINERY

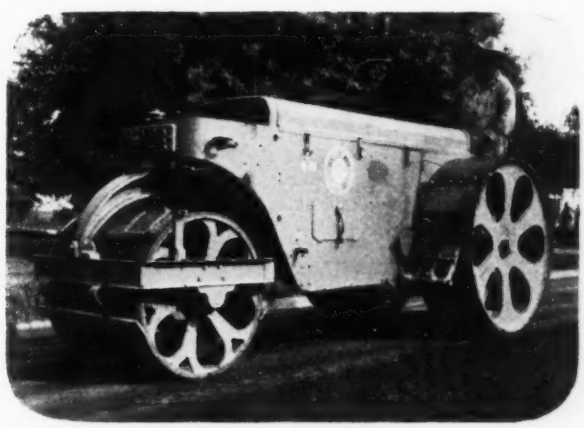


HUBER MAINTAINER
Easily converted to a bulldozer, lift-loader, patch roller, highway mower, berm leveler, snow plow, or rotary broom.

Now is the logical time to ready your organization and equipment for the long construction grind ahead. Realize new profits next year by turning to Huber road machinery. It's a move that will save you time and money, because Huber machinery is built for speedy operation with plenty of power and stamina to assure longer years of trouble-free service. See your Huber distributor today and let him show you the important features that are built into each Huber machine.



HUBER TANDEM ROLLER
Variable weights in three models from 3 to 14 tons.



HUBER 3-WHEEL ROLLERS
Fast, powerful, automotive type rollers built in sizes from 5 to 12 tons.

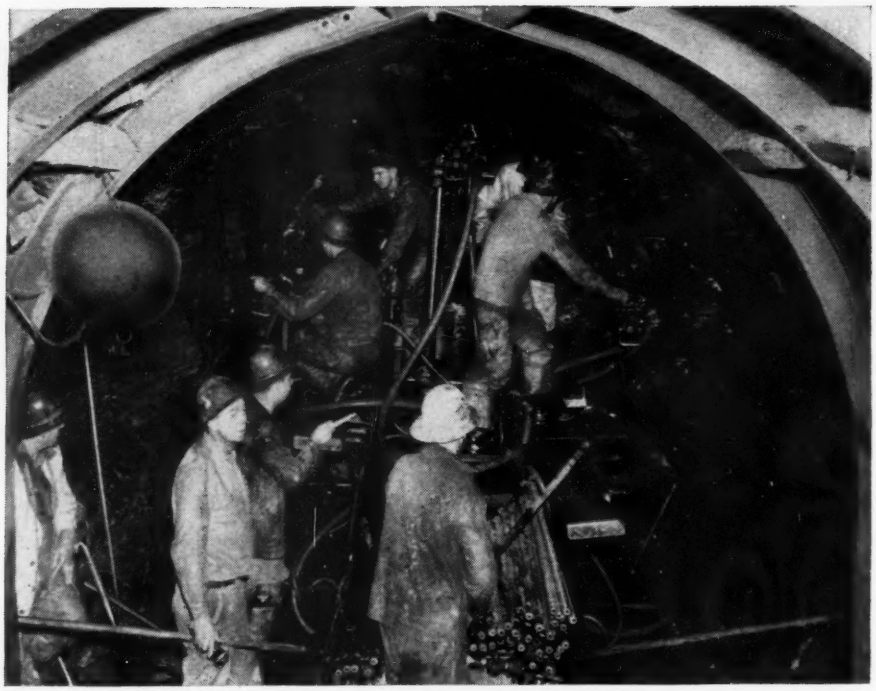
THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.

HUBER

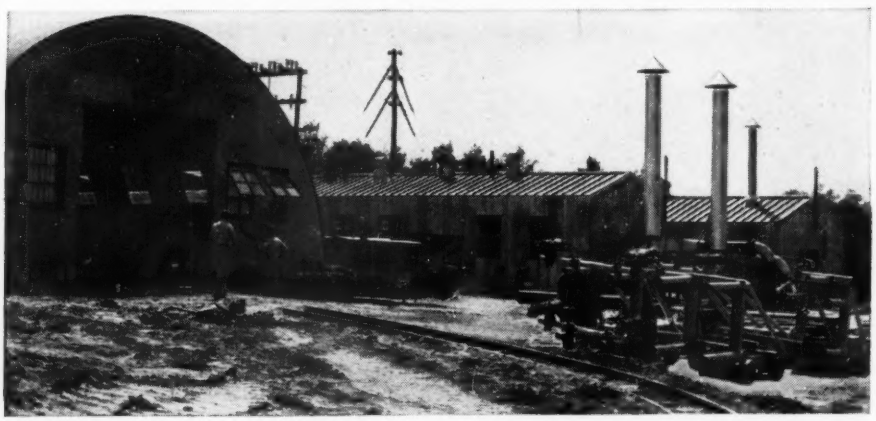
3 Wheel • Tandem ROAD ROLLERS and MAINTAINERS

7-mile tunnel holed through

as Baltimore expands Water Supply



Tunnel driving is a specialty of the Rosoff organization. This view shows one of the jumbos in action, mounting five 3½-in. drifters. Using Bethlehem Hollow Drill Steel exclusively, the contractor employed forged bits to drill the relatively hard formations.



Buildings at the site of the Druid Park Shaft include the central blacksmith shop, compressor house, and change house. Note the jumbos in right foreground.

The excavation of the Liberty Road-Montebello Tunnel has just been completed by Samuel R. Rosoff, Ltd., for the Bureau of Water Supply, of the city of Baltimore. The 10-mile Patapsco-Liberty Road Tunnel is the next big job. Due for completion in 1951, this project has also been awarded to Rosoff.

It's all a part of Baltimore's Patapsco Development, involving the construction of 17 miles of water tunnel, which will increase Baltimore's water supply to the tune of 50 million gallons each day.

Beginning work on the first underground bore in October, 1947, the contractor a few months later was operating from six headings, utilizing four shafts previously sunk. With jumbos mounting five drifters each, the average drill round consisted of from 29 to 32 holes, 7 to 9 ft deep. The diameter excavated ranged from 9 ft, 4 in. to 11 ft. Holing through occurred on September 10, 1948, between the Stoney Run and Montebello shafts, the last section of the tunnel to be driven.

Using Bethlehem Hollow Drill Steel exclusively, the contractor forged his own bits in the central blacksmith shop at the Druid shaft. Here all steel was sharpened in three daily shifts and issued to the various tunnel headings. Drill steel was employed in 2-ft changes, beginning with 3-ft starters, the bit gauge being reduced ⅛-in. with each increase in length.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

BETHLEHEM HOLLOW DRILL STEEL

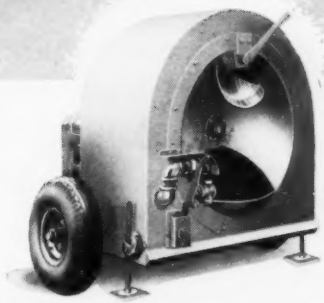
"Instead of rebuilding all the old covered bridges, we decided it was cheaper to replace them with Quonset huts."

TIMBER SERVICE BULLETIN—For young engineers and others who have come into industry since the war, a brochure has been prepared. It covers not only timber engineering and designing but also timber and forest products research, product development and wood chemistry. More than 20,000 copies are being distributed including 400 to professors of engineering and architecture for distribution to their students.—**Timken Engineering Co., 1319 Eighteenth St., N.W., Washington 6, D. C.**

RENEWABLE VALVES—A 12-p. folder introduces the "Renewo" valve threesome. It illustrates in cutaway fashion the interchangeability of parts by which users of regular type "Renewo" valves can convert to either nickel alloy or stainless steel plug type valves by simply changing seats and disks. The renewable features reduce original and maintenance expense by lowering stock room investment, simplifying ordering and handling, and facilitating repairs.—**The Lunkenheimer Co., Cincinnati 14, Ohio.**

PILE HAMMERS AND EXTRACTORS—Newly revised, with additional information and illustrations, bulletins on double-acting pile hammers and extractors are now available for contractors, engineers and others in the construction industry. Ten sizes of hammers are illustrated, with full specifications, dimensions and lists of duplicate component parts. A useful formula for computing the bearing capacity of piles, a listing of available piledriving leads, and rigs for pulling piles with inverted hammers are other subjects covered. — **McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y.**

EIGHT TO TEN BATCHES
more per barrel of Asphalt!

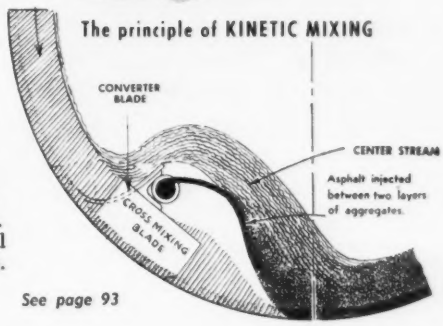


HERE is an unusual mixing principle in an asphalt mixer that assures maximum coating of aggregate with the minimum of asphalt.

The action of the converter blade and cross mixing blades sets up a mulling action and forces the faster moving materials through the slow ones. In addition the asphalt is introduced *under pressure* into the middle and within the aggregate stream. This unusual mixing action means a better mix and material savings in asphalt.

The Kinetic Asphalt Mixer is a compact, fully portable unit that can be towed behind car or truck. It delivers 3 cu. ft. of mix in 30 seconds and will handle either hot or cold mixes. Ask for folder K-100 which gives full details on mixing principle and design.

The principle of KINETIC MIXING



See page 93

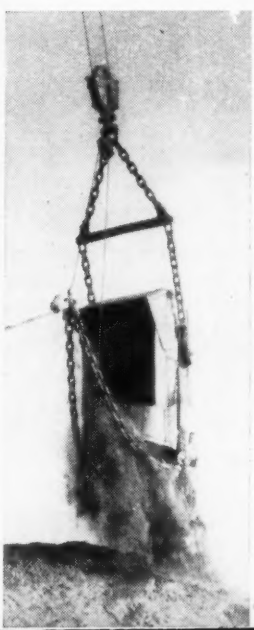
the FOOTE Kinetic mixer

THE FOOTE COMPANY, INC.

1910 STATE STREET NUNDA, NEW YORK

Subsidiary of Blaw-Knox Company

Of Course it's an OMAHA DRAGLINE BUCKET



The combined experience of hundreds of contractors, operating under every and all conditions, has been built into these buckets. Through this experience dead weight has been eliminated and a bigger payload built in. OMAHA Dragline Buckets have been earning extra profits for contractors for years. Let OMAHA Buckets make more money for you.

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

RUD-O-MATIC TAGLINE

Provides positive, steady tension — holds buckets steady under all working conditions.

Spring tension holds buckets steady. No weights, pins, tracks, or carriages. Cable saving more than pays for RUD-o-MATIC. Compact—easily installed. Eight models to fit all bucket sizes.

RUD-o-MATIC Taglines are used as standard equipment by most crane manufacturers. Spring tension is powerful enough to hold a clam shell bucket steady. Operates with boom at any angle. Compact – it can be installed in less than thirty minutes. No pins, weights, tracks, or carriages to wear or be replaced. Taglines are complete with fairlead U bolt clamping plates, and cable attached. Immediate delivery – see your equipment dealer – or write –

• ***Dealers—selected territories in Midwest and Northwest are still open. Write for all details.***

RUD-o-MATIC combination Magnet Reel and Tagline . . . operates on spring tension principle with tagline attached to magnet to steady – and electric cable fastened to magnet connections with all slack needed to prevent cable from being pulled or jerked loose from connections. Exclusive with RUD-o-MATIC.

McCAFFREY RUDDOCK *Tagline* Corporation

2131 East 25th St., Los Angeles 11, Calif.

CONCRETE PILES AND CAISSONS —Several types of cast-in-place piles regularly driven by Western Foundation Corporation to meet needs of differing foundation conditions are described in a new 12-p., four-color catalog. These include: Button-bottom piles, where a precast point is driven to good stratum and a corrugated shell of uniform size for its full depth used as a shaft; pedestal piles, where concrete is driven out of a heavy driving tube to form an enlarged base; compressed piles, where concrete is forced out against the soil to form a large diameter shaft for the full depth, and caisson piles, with an uncased shaft up to 36 in. dia. Also described are composite piles with wood or steel bottom sections and concrete tops featuring a joint that will take both bending and tension. — **Western Foundation Corporation, Two Park Ave., New York 16, N. Y. and 308 W. Washington St., Chicago 6, Ill.**

TRENCH LOADING TABLES — A 28-p. booklet of trench loading tables is available to construction engineers and contractors. Reference tables provide adequate data and a quick, easy method of pre-determining loads and strength requirements for clay pipe. Tables show the estimated load according to pipe size, trench depth and width and type of backfill by the standard "Marston" formula. Booklets were distributed to the company's sales organization in the Great Lakes and northeastern seaboard states. For further information, engineers and contractors in that area may write to—**The Robinson Clay Product Co., Akron 9, Ohio.**

ELECTRIC MOTORS— (11-p. booklet) Information on Allis-Chalmers general purpose motors for industry is contained in a new Handy Guide for Quick Selection of Electric Motors. Bulletin provides detailed specifications covering squirrel-cage induction motors and application data, range of sizes and speed torque curves on synchronous, wound rotor and direct current motors. Also stressed is the company's complete line of motor controls for every requirement of motor operation, with charts listing the range of each type of control in voltage and horsepower. —**Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.**

MACADAM BASE CONSTRUCTION—A new 16-p. booklet explains the action of the Seaman Pulvi-Mixer and shows how the difficulties of even distribution and leveling of crushed stone and other aggregates can be overcome.—**Seaman Motors, Inc., 305 N. 25th St., Milwaukee 3, Wis.**

BREAK PAVEMENT

the low cost way!

With the

MIGHTY MIDGET

The City of Compton, California, realizes the economy of using the MIGHTY MIDGET. Illustrated is the MIDGET breaking a 36" width of 7" concrete for a 14 mile water main. The MIDGET is driven by a 105 CFM compressor.

Find out what the MIDGET can do for you . . . ask your nearest dealer or write:

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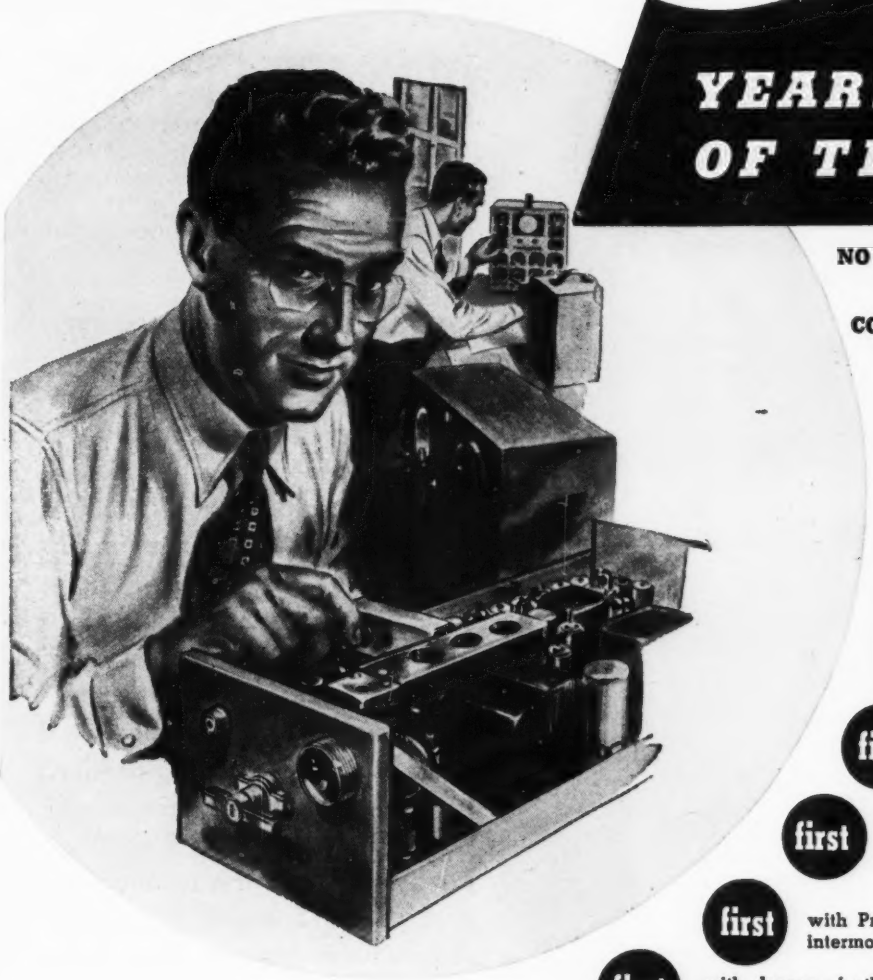
Motorola FM 2-way radio



YEARS AHEAD OF THE FIELD!

NO OTHER MANUFACTURER CAN MATCH THIS LIST OF Motorola RADIO COMMUNICATION "FIRSTS"

- **first** with noise-compensated squelch that makes present day 2-way radio communications practicable. (U.S. Patent 2343115)
- **first** to develop the vibrator power supply in receivers—now accepted as the best power supply system.
- **first** with 20 D.B. quieting at 0.4 microvolt input.
- **first** to build successfully equipment for the 152-162 mc. band.
- **first** with "Precision Selectivity" for channel conservation.
- **first** with Precision Cavity for intermodulation control.
- **first** with dozens of other major developments in radio communications.

Inspired engineering and careful craftsmanship are your guarantee that the *Motorola* equipment you buy today will be *years ahead for years to come!*

Of course the Motorola equipment you buy today will last longer — that has been proved by hundreds of official records. But just as important to you is the fact that the Motorola equipment you buy today is guaranteed against early obsolescence by the many advanced developments it incorporates — developments that will not be duplicated in other equipment for months — or years. Motorola is able to stay ahead of the field because it has the largest FM 2-way radio communications laboratory and more qualified radio communications developmental engineers than any other manufacturer in the industry — BAR NONE.

See for yourself how much MORE Motorola gives you. A Motorola Communications Engineer will be glad to call and discuss radio communications as it concerns your specific problems. He'll put you in touch with people in your business who are using Motorola equipment. He'll give you FACTS, not fiction — FIGURES, not fables — WRITE TODAY.

Motorola
FM 2-WAY RADIO

Motorola Inc.
Communications Division: 4545 Augusta Blvd., Chicago 51, Ill.

Remember LINK-BELT SPEEDER Engineering---

WHEN YOU CHOOSE A SHOVEL-CRANE

•

DESIGNED AND BUILT RIGHT— FROM THE GROUND UP

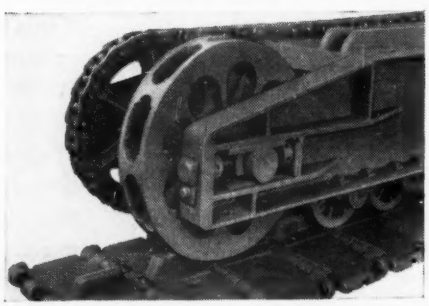
Performance is the big consideration in selecting machinery for profit-making purposes. Performance you can bank on for trouble-free operation, full production, low upkeep and easy handling is the natural result of Link-Belt Speeder's advanced engineering. You see it in every detail from the crawler treads to the boom-tip. You see it in every one of Link-Belt Speeder's twenty-five models, crawler or wheel mounted, up to 3 yard capacity. Whatever size and type of Link-Belt Speeder meets your requirements has the ruggedness, speed, long life and economy that spring from these distinctive engineering features.

FOR EXAMPLE—

Link-Belt Speeder LS-85 equipped as dragline, working in Tipton County, Tennessee, gravel-pit, doing a hard job speedily and easily. This machine, like all Link-Belt Speeders can be converted quickly to shovel, crane, clamshell, trench hoe or pile driver, as occasion demands. There's full-utility in every Link-Belt Speeder!

Back of every Link-Belt Speeder is a well-equipped distributor with factory-trained service men and a full stock of parts to keep every Link-Belt Speeder in tip-top operating condition. Call on our distributor for information about the full Link-Belt Speeder line. Or write for latest catalog.

NON-CLOGGING CRAWLER TREADS



Better performance and greater speed are assured with these Link-Belt Speeder non-clogging crawler treads. They are lug-driven, supported topside and ground side by a series of closely-spaced large diameter dual tread rollers. Track shoes have no pockets to pick up sand and rock.

11,326

LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA

Builders of the Most Complete Line of SHOVELS-CRANES-DRAGLINES

EQUIPMENT MEN

and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

SALES—Charles F. Martin, Jr., has joined the sales and engineering staff of the **Timber Engineering Co.** as manager of the Chicago office . . . **V. L. Snow** is assistant sales manager of **The Euclid Road Machinery Co.** . . . **Paul E. Miller** has been appointed to the board of regional sales supervisors of the **Eutectic Welding Alloys Corp.,** 40 Worth St., New York 13, N. Y., and **Jack R. Koske** is regional sales supervisor in east central U.S. . . . **W. Troy Gaunt** is district sales manager at St. Louis, Mo.; for **Universal Atlas Cement Co., Winfield H. McDowell** for 14 years sales manager of the Kansas City territory has retired after 37 years with the company. **Harold J. Layden** is manager of the Kansas City sales area . . . **L. T. Martensen, Jr.,** has joined **Lindberg Engineering Co.,** Milwaukee, Wis., as a sales engineer . . . **Kenneth Williamson** is district sales manager of the **Osgood Co.** and the **General Excavator Co.,** Marion, Ohio, for Arizona, Colorado, New Mexico, Utah, Wyoming and parts of Idaho, Montana and Nebraska . . . **Joseph N. Banky** is a sales representative of the Chicago district office of Allis-Chalmers . . . **Robt. B. Barnes** is sales manager of the **Link-Belt Speeder Corp.** . . . **Reynolds Metals Co.,** Louisville, Ky., is planning to decentralize sales operations of its building products division. There will be four sections geographically. **H. N. Kirchdorfer** is eastern sales manager of the parts division, New York. **Harry H. Armstrong** is at the Chicago office to specialize in sales of **Alumi-Drome** in the Midwest . . . **A. J. Eldridge** is sales manager in the U.S. for **Construction Improvements, Ltd.,** of Toronto, Ont., at 209 S. High St., Columbus 15, Ohio. The firm is associated with **Lidgerwood Industries, Inc.** of New York in the manufacture and sale of Lidgerwood Travelift Cableways . . . **Gordon A. Weller** is assistant manager of replacement sales and **Frank A. Calosimo,** chief service engineer of the American Brakelok division of the **American Brake Shoe Co.** . . . **W. Rex Becker** has been appointed sales manager of standard lines for the **General Electric Co.'s** conduit products division . . . **John A. Storrs** is a N.Y. district sales representative for **Kennametal, Inc.,** Latrobe, Pa. . . . **Richard E. Hoagland** is manager of by-products

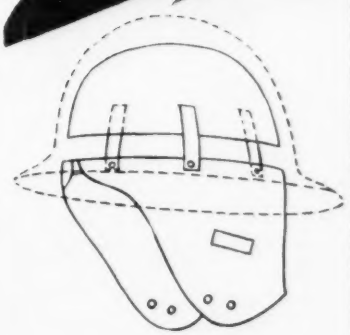
(Continued on page 132)

Add WARMTH and PROTECTION
to your SKULLGARDS
on the job with...

M·S·A
Winter Linings
for SKULLGARD
HATS and CAPS

Here is warm, snug-fitting neck and ear covering for men on outdoor construction jobs—added to the time-proved head protection of M.S.A. Skullgards! Windproof, waterproof, in or out in a matter of seconds, the M.S.A. Winter Lining keeps out rain, snow, and icy winds—provides warmth and comfort in spite of inclement weather—is made in two sizes to fit all Skullgard protective hats without alteration of any kind, and without change in head size.

Made of heavy genuine Greyfall cloth, closely-woven and warmly lined, the Winter Lining conforms smoothly to the wearer's head—is drawn snug by laces or chinstrap. Bulletin DK-9 gives complete details.



EASY TO INSTALL OR REMOVE

The M.S.A. Winter Lining consists of a skullcap fitted with three short tabs and a lined earlug section. To install, simply place skullcap in crown of hat and bring tabs down between sweatband and hat wall. Earlug section is then fastened to the tabs by means of snaps. The sweatband is not removed.

MINE SAFETY APPLIANCES COMPANY
BRADDOCK, THOMAS AND MEADE STREETS · PITTSBURGH 8, PA.
District Representatives in Principal Cities
In Canada: MINE SAFETY APPLIANCES COMPANY OF CANADA LIMITED, TORONTO
MONTREAL . . . VANCOUVER . . . CALGARY . . . WINNIPEG . . . NEW GLASGOW, N. S.

PERFECTION
IS THE NAME TO
Remember
WHEN YOU WANT
STEEL PLATFORM BODIES WITH HYDRAULIC HOISTS
PERFECTION Series "1500" All-Steel Platforms are designed for service where the floor of the body must resist severe wearing action. Floor is made of durable 10 gauge steel--welded to form a smooth one-piece surface which facilitates clean, speedy dumping. Heavily reinforced stake pockets take standard finished 2 by 4 wood stakes or special side sections. Regularly furnished with PERFECTION No. 615, 715, or 720 Hoist.
Write for complete information
THE PERFECTION STEEL BODY COMPANY
Galion, Ohio, U. S. A.
PERFECTION
STAKE and DUMP BODIES
HYDRAULIC HOISTS
FOR ANY TRUCK
STANDARD or SPECIAL UNITS
IN ALL SIZES : FOR ANY USE

(Continued from page 131)

sales for **Kaiser Co. Inc.** at 756 So. Spring St., Los Angeles 14, Calif. . . . **Gordon V. Millichamp** is manager of the **Pennsylvania Rubber Co.'s** N. Y. sales branch . . . **Gerald W. Wilson** and **Wm. F. Jordan** are Eastern sales division district representatives of **Caterpillar Tractor Co.**, Peoria, Ill. **M. J. Boho** is vice-president in charge of sales of **Hagan Corp.**, Pittsburgh . . . **O. W. Schmidt** is Central states district sales manager for **Atlas Chain & Mfg. Co.**, Philadelphia . . . **J. P. Johnson, Jr.**, is Philadelphia sales representative at 123 So. Broad St. for the **American Lumber and Treating Co.** and **W. E. Wilkins** is Baltimore, Md. representative.

Geo. W. Bergman is sales manager of the **Joy Mfg. Co.** in the Knoxville, Tenn., district . . . **E. F. Armington** is director of sales for **The Euclid Road Machinery Co.**, and **W. W. Paape,** sales manager . . . **James T. Guthrie** is sales engineer in Kentucky and Tennessee for the **A. P. Smith Mfg. Co.**, East Orange, N. J., producer of fire hydrants, gate valves and water-works specialties . . . **L. D. Yager** is division manager of the Detroit sales office of the aluminum division, and industry manager, automotive division, **Reynolds Metals Co.** . . . **W. H. Hammond** has resigned as vice-president of sales of **Gar Wood Industries, Inc.**, Wayne, Mich., to become a distributor of the comapny's products. **E. B. Hill** is general sales manager . . . **Herman C. Phelps** is sales manager of the **All-State Welding Alloys Co., Inc.**, of White Plains, N. Y. . . . **D. A. Hutchinson** is general sales manager of **Sterling Tool Products Co.** . . . **John S. Conway** is general sales manager of the **Koehring Co.**, Milwaukee, Wis. . . .

Thomas B. Moule is sales manager of the **Plomb Tool Co.**, Los Angeles, Calif. . . . **G. O. Britton** is domestic sales manager and **E. B. Schlenk** district representative for central area for **Athey Products Corp.** . . . **Frank L. Johnson** is division sales manager of the **Osgood Co.** and the **General Excavator Co.**, Marion, Ohio . . . The **H. K. Ferguson Co.** has established a new sales office at 120 S. LaSalle St., Chicago managed by **L. Douglas Lacy** . . . **John A. Proven** is general sales manager of the **Porter-Cable Machine Co.**, Syracuse, N. Y. . . . **Harold Gearin** has joined the sales staff of **Fluor Corp. Ltd.** at the Los Angeles office . . . **Carroll Edgar** will represent **Kennametal, Inc.** of Latrobe, Pa. in the Seattle area . . . **M. G. McGregor** is sales manager of the **Ahlberg Bearing Co.**, Chicago . . . **Wendell V. Richards** has been appointed central sales manager for **R. G. Le Tourneau, Inc.**, Peoria, Ill. . . . **John W. Bogle** is directing a

(Continued on page 134)

"We've Standardized On Blue Brutes"

Millard Buzby Epley, Treasurer of Buzby Brothers, Westville, N. J.

Buzby Brothers' profit-boosting fleet of Ransome Blue Brute Hi-Up Truck Mixers at their batching plant in Westville, N.J. The three 3-yd. Mixers at left, bought in 1946, proved so satisfactory that the other five Hi-Ups were added—two in 1947 and three in 1948.

Here's how Ransome Blue Brute Hi-Up Truck Mixers rate with men who use them constantly. Millard Epley, Treasurer of Buzby Brothers, writes:

"All our Hi-Ups have had an absolute minimum of down time. Non-availability has never cost us a penny.

"Every Mixer must be on call for any size and type of job, at any hour. Ransome's quick charging action at the plant, thorough mixing en route and fast discharging at the job allow us to average nearly 200 yds. a day on six-or seven-mile hauls.

"I believe Ransome's better mixing action makes stronger concrete — I know all our customers are satisfied.

"Due to Ransome's A-1 service and the excellent operation of our Hi-Up Mixers, we have found it profitable to standardize entirely on Blue Brutes."

Get around among Hi-Up users and you'll find this is a familiar story, with smooth-running, efficient Blue Brute Truck Mixers saving time and money on every job. Write for Bulletin 221, or see your nearby Worthington-Ransome Distributor for full proof that *there's more worth in Worthington.*

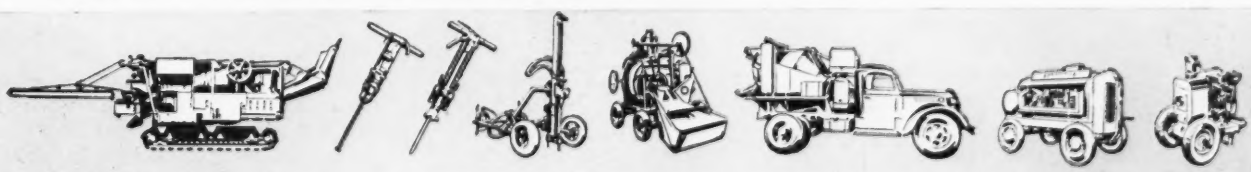
RB-3

WORTHINGTON

WORTHINGTON PUMP AND MACHINERY CORPORATION
Worthington-Ransome Construction Equipment Division, Holyoke, Mass.
Distributors in all principal cities

Fast action! One of Buzby Brothers' 3-yd. Hi-Ups, pouring concrete flooring for a new warehouse at Gibbsboro, N.J. This job, 10 miles from the batching plant and totalling 51,000 sq. ft. was completed in 13 days.

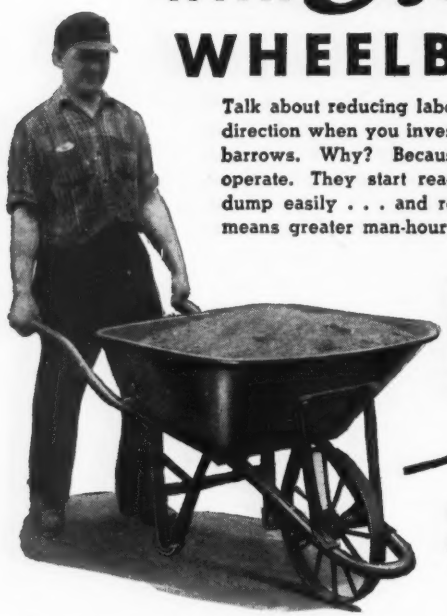
Buy Blue Brutes



IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

You're on the Right Track...

WITH Sterling WHEELBARROWS



Talk about reducing labor costs. You're headed in the right direction when you invest in sturdy, all-steel Sterling Wheelbarrows. Why? Because Sterlings require less effort to operate. They start readily . . . roll along smoothly . . . dump easily . . . and result in less operator fatigue. This means greater man-hour production for your transport jobs.

Look for this mark on every Sterling.

Get all the facts about Sterling's tubular steel barrow. Write for new Sterling Cat. #58.

STERLING WHEELBARROW CO.
MILWAUKEE 14, WIS., U. S. A.

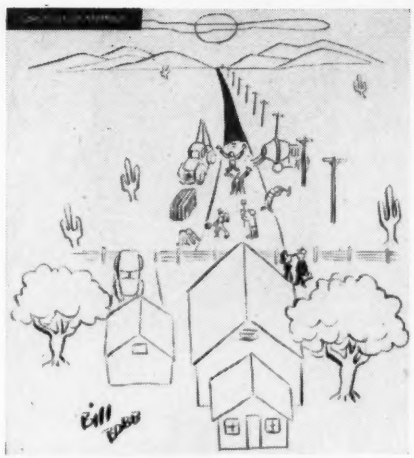
GREATER YARDAGE! LOWER COST!

SEND FOR BULLETIN

WELLMAN Williams WELDED BUCKETS

Wellman Buckets cost less to maintain because they are ruggedly built. They deliver bigger payloads because they are properly designed. The superior engineering in Wellman Buckets gives the operator better balance, easier handling, cleaner digging. Wellman pioneered the unique construction that pays off in greater yardage at lower costs. There's a Wellman Bucket for every service.

THE WELLMAN ENGINEERING COMPANY
7017 CENTRAL AVENUE CLEVELAND 4, OHIO



"You mean they didn't tell you?"

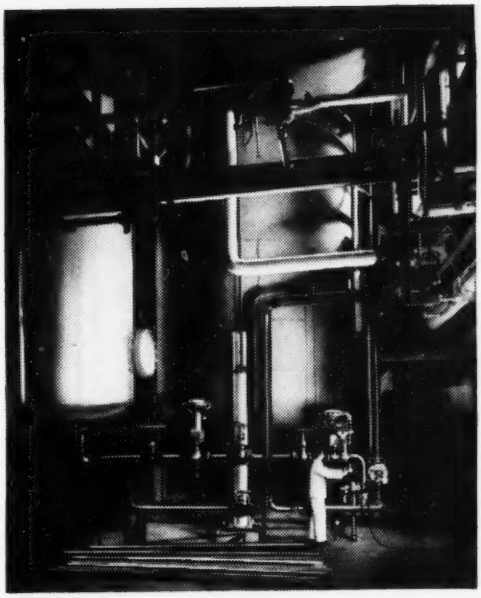
(Continued from page 136)

new wholesale branch sales operation for the **General Tire & Rubber Co.** at Richmond, Va. . . . **Geo. E. Sprackling** is sales manager for the **Lancaster Engineering Corp.**, Lancaster, Pa. . . . **J. T. Gillespie Jr.** is sales manager for the **Watson-Stillman Co.**, Roselle, N. J. . . . **Titus N. Radu** is foreign sales manager of the **Arco Co.**, Cleveland and Los Angeles, manufacturers of paints and special coatings . . . **Spencer R. Stuart** is sales promotion manager for Nu-Hue products, architectural finishes, **Martin-Senour Co.**, Chicago.

DISTRIBUTORS—Rozier-Ryan Co., 3340 Morganford Rd., St. Louis, Mo., is regional warehouse representative for the **R.P.B. Corp.**, Oakland, Calif., makers of the Mighty Midget pavement breaker . . . **Union Roofing & Paper Co., Inc.**, York, Pa., is a distributor for the **Richkraft Co.**, of Chicago . . . In the New York metropolitan area, sale of **W. & L. E. Gurley** instruments will be handled by **L. L. Ridgway Co.**, 324 Lafayette St., who will open a branch office at 277 Broadway for the display of Gurley equipment. **Western Blueprint Co.**, Kansas City, Mo., will be the new agent for Kansas and Western Missouri, and **Wray Williams Co.**, Memphis, Tenn., will cover Tennessee and Arkansas. Gurley's New York office is discontinued.

A. J. Bohn Co., 803 Forsyth Bldg., Atlanta, Ga., are representatives in Georgia, Alabama, Florida, North and South Carolina for **Venito Floor Co.**, Philadelphia, Pa. . . . **American Brass & Copper Co.**, Ashland, Calif., is distributor of aluminum products, **Reynolds Metals Co.**, Louisville, Ky. . . . **M. C. Burt Equipment Co.**, Rockford, is dealer in Illinois for **Davey Compressor Co.** . . . **A. Lietz Co.**, Los Angeles, and San Francisco is sales

(Continued on page 138)



An actual photograph of one of a battery of 12,000-gallon fermentation tanks used in a modern Penicillin production plant. Many types of GMC trucks perform many different types of transport jobs for this concern.

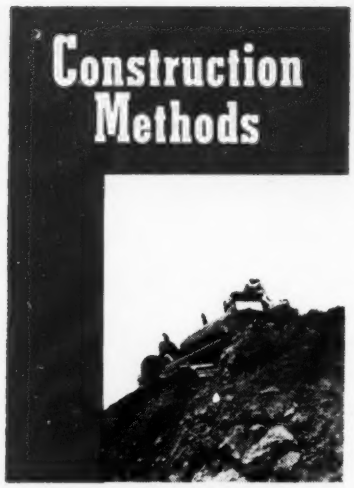
PORTABLE *"Pipeline"* FOR PENICILLIN

A few years ago, Penicillin, the newest of "wonder" drugs, was produced in small quantities by slow laboratory methods. Today, it is being manufactured on a mass production basis in large capacity plants employing the latest scientific equipment.

The GMC truck with large twin-tank trailer, shown below, "pipes" penicillin broth . . . 3,400 gallons per load . . . between plants of a leading pharmaceutical manufacturer.

Here is a graphic example of how modern mass production schedules are geared to the speed, flexibility and dependability of motor truck transportation. And, no matter what the transport need in the construction field . . . just name your job . . . there's a GMC to do it!

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION



In construction...the men "o

Engineers and contractors responsible for actual construction work are the men who buy the equipment and materials to meet the "specs" for every step of the job.

Moreover, engineering does not stop with a set of "specs." It goes right on through the actual construction work. There is the work of "planting" the job. Also changes in "specs" happen often when "on location" conditions or experience call for modifying performance requirements and product specifications. Thus, the men responsible for construction methods and work pick the brands and makes of materials and equipment that become a part of the project itself

The machinery and equipment, the materials, tools, parts, and supplies these men need for getting work done . . . on time . . . to make a profit on the lowest bid . . . *they buy on their own.*

CONSTRUCTION METHODS serves exclusively the work-interests of these men who work out and supervise field practices and procedures on all types of heavy engineering construction all over the country.

If your product meets some need of theirs, advertising in CONSTRUCTION METHODS will help you get their "O.K.'s" . . . quicker . . . more often . . . at less cost per "O.K."

For more information about the heavy construction market, send for CONSTRUCTION METHODS' Data File Folder.

Construction Methods

SINCE 1919

SERVING THE MEN "ON LOCATION"

ABP ABC

Averaged 26,541 net paid subscribers first 6 months, 1948

McGraw-Hill Publishing Co.
330 West 42nd Street, New York 18, New York

nen "on location" buy the brands

◀ *On a big construction project in Illinois.*

ABC

ged 26,541
d subscribers
months, 1948

Lift 88% easier WITH SIMPLEX SCREW JACKS

GET FASTER, SAFER JACKING ON ALL CONSTRUCTION JOBS

Put Simplex Screw Jacks on your heavy-duty construction jacking jobs—see how you save in time and effort. These Screw Jacks employ a single chrome-moly ball, nested under the drop forged steel cap, that actually reduces friction 88%! The single ball won't flatten; cap can't slip...even under heaviest loads.

A flared base of tough, malleable iron gives extra stability and protection. The peephole in the base guards against over extension of the screw; insures safety. Colors indicate jack capacities; make selection easy on the job.

Available in 21 models with 4-Way Head—capacities from 10 to 24 tons. Also available in 10 models with Ratchet Type Head for close quarter operation — capacities 20 or 24 tons.

Simplex LEVER · SCREW · HYDRAULIC Jacks

TEMPLETON, KENLY & CO.

1008 South Central Avenue, Chicago 44, Illinois

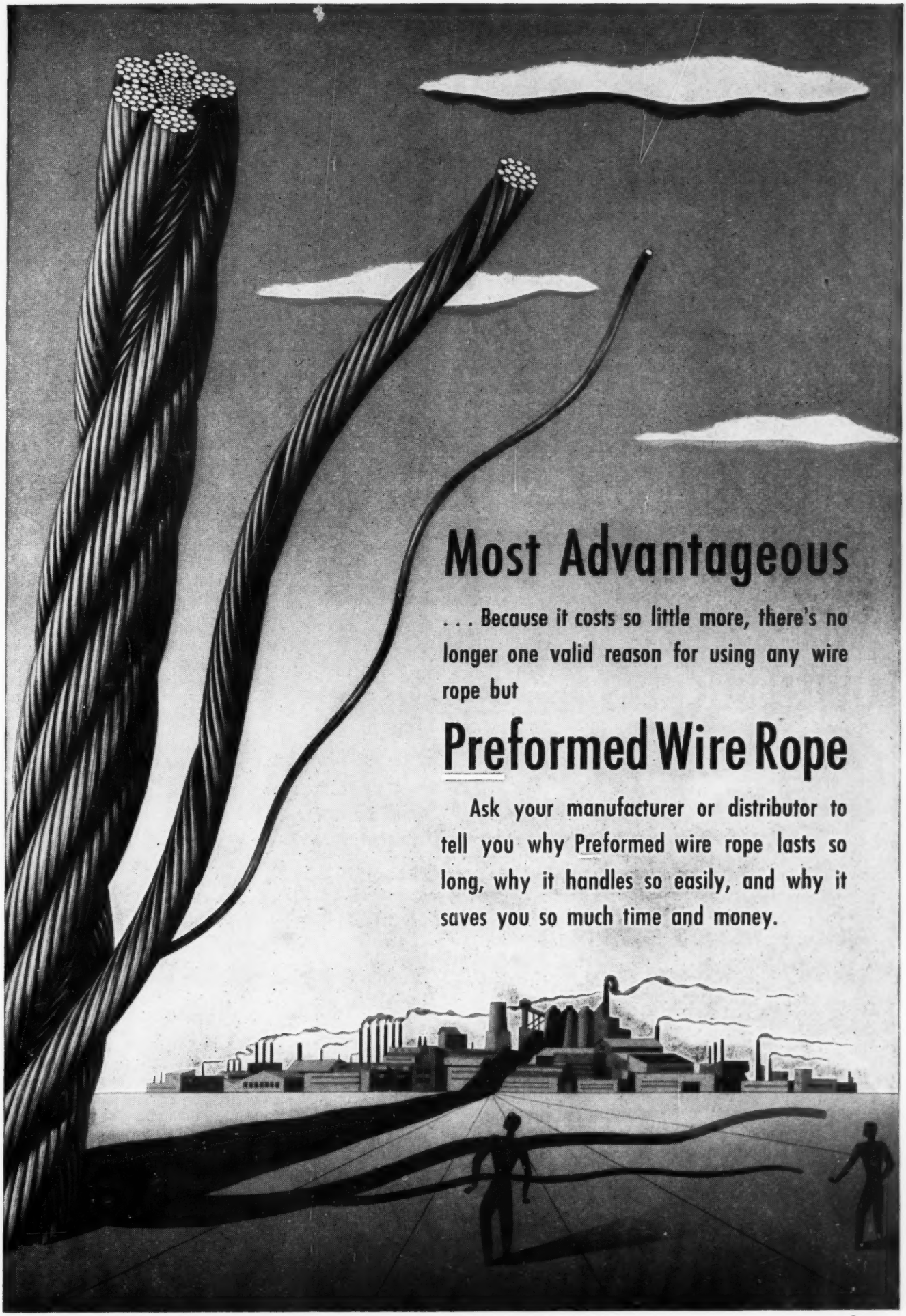
(Continued from page 134)

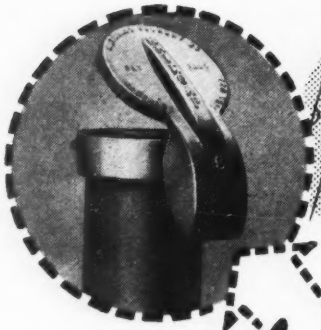
agent for the equipment of **W & L E Gurley, Troy,** N. Y., in California, Oregon, Nevada, Arizona, New Mexico and El Paso, Tex.

PERSONALITIES—Geo. W. Oakes has resigned as superintendent of **Pittsburgh Plate Glass Co.'s** plant at Crystal City, Mo., to manage his personal business interests. **Robt. M. Conley,** Carnegie Institute of Technology, 1917, is the new superintendent. **Paul Brainard** is head of the new Hyster engineering standards department of the **Hyster Co.,** Portland, Ore. . . . **C. H. Lage** is vice-president and general works manager of the **La Plant-Choate Mfg. Co., Inc.,** Cedar Rapids, Iowa . . . **James A. Nary** is vice-president in charge of production of the **U. S. Testing Co., Inc.,** Hoboken, N. J. . . . **A. C. Anderson,** Omaha, Neb., has been appointed regional director for the **Associated Equipment Distributors** in Iowa, Kansas, Missouri and Nebraska . . . **C. W. Staacke,** belt conveyor engineer, has joined **Hewitt-Robins, Inc.,** as a technical consultant . . . **B. F. Bilsland** is manager of the new Midwest region of Allis-Chalmers . . . **David D. Kennedy,** Nunda, N. Y., and **Robt. W. Frank,** Pittsburgh, Pa., have been elected directors of **Blaw-Knox Co.** . . . **Ralph M. Hoffman** has been elected a vice-president of **Link-Belt Co.** . . . **C. E. Tweedle** is vice-president of **Arkania Regulator Co.,** Chicago, Ill. . . . **L. S. Meyer** has been chosen president of the **Hydraulic Press Brick Co.,** succeeding **Geo. A. Bass,** new board chairman . . . **D. J. Erikson** has been elected president of **Hagan Corp.** and its subsidiary companies. He started with the company as a draftsman more than 30 years ago . . . **Marshall G. Munce** has been elected a vice-president of **York Corp.,** York, Pa.

John H. Batten is the new president of the **Twin Disc Clutch Co.,** Racine, Wis., and Rockford, Ill. . . . **Ronald A. Johnson** is assistant to **Paul Brainard,** head of the new engineering standards department at the Portland, Ore., plant of the **Hyster Co.** . . . **Wm. Kusz** is supervisor of industrial advertising at **Caterpillar Tractor Co.,** Peoria, Ill. . . . **Raymond P. Wiggers** has been appointed advertising manager of the **Frank G. Hough Co.,** Libertyville, Ill., makers of road building and material handling equipment . . . **Geo. R. Milne** is operating manager of the **National Carbide Corp.** . . . **Ben Conery** is advertising production manager for the **U.S. Plywood Corp.** . . . **B. L. Lerch** is factory branch manager of the new St. Louis office of General Controls . . . **B. F. Bilsland** is manager of the midwest

(Continued on page 140)


Most Advantageous
. . . Because it costs so little more, there's no longer one valid reason for using any wire rope but
Preformed Wire Rope
Ask your manufacturer or distributor to tell you why Preformed wire rope lasts so long, why it handles so easily, and why it saves you so much time and money.



RAINCAP

New!

THE CAP THAT DOES NOT FORGET TO CLOSE

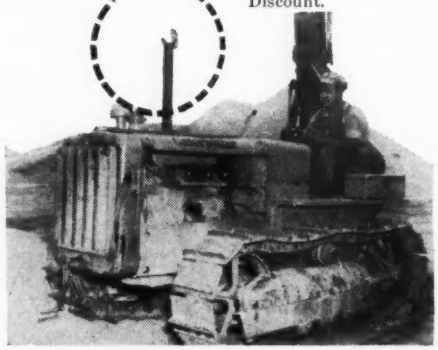
Completely automatic — the "RAINCAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—with bronze bushing—can be installed in two minutes. F.O.B. Waterloo, Iowa.

- Immediate delivery
- Liberal Dealer Discount.

STOPS MOISTURE FROM FALLING INTO TRACTOR EXHAUST

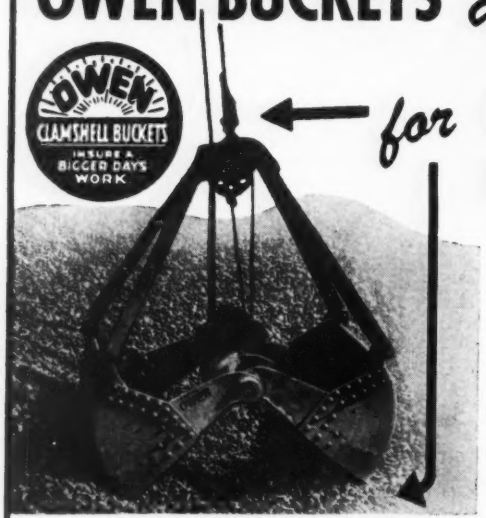
No.	O.D. Exhaust	Retail
1	2⅛"	$1.90
2	2⅜"	1.90
3	2¾"	1.90
5	1⅞"	1.90
55	2"	1.90
5x	1¾"	1.90
6	1½"	1.90
66	1⅜"	1.90
7	2½"	1.90
8	3"	2.50
9	3⅛"	2.50
10	3¼"	2.50
11	3½"	2.75
115	3¾"	3.00
12	4"	3.00
123	4⅛"	3.00
125	4¼"	3.00
14	4½"	3.00

Write Dept. CM.



WATERLOO FOUNDRY CO., WATERLOO, IOWA

OWEN BUCKETS *are popular* for LOW HEADROOM



and thus are more adaptable to various operating conditions.

Owen Bucket heads are one-piece alloy steel castings, light enough to prevent top heaviness and designed for rigid arm connections.

Special head design eliminates wear on upper arm ends. Rack and wobble is prevented.

A MOUTHFUL AT EVERY BITE

The Owen Bucket Company
6020 Breakwater Avenue, Cleveland, Ohio
Branches: New York • Philadelphia • Chicago • Berkeley, Cal.

(Continued from page 138)

region of the general machinery division of Allis-Chalmers Mfg. Co. at Chicago . . . **A. R. Senter** is manager of the Ashland, Ky., fabricating division of **Armco Drainage and Metal Products, Inc.**

Earl T. Larson is advertising director of the construction machinery companies of Waterloo, Iowa . . . **C. B. Johnson** is chief engineer and **E. R. Gilmore,** director of research for the **Pittsburgh Equitable Meter** division of the **Rockwell Mfg. Co.** and **Paul E. Butzin** is director of engineering of the **Delta Manufacturing** division . . . **Orville F. Figley** is manager of the Chicago district of the **U. S. Steel Supply Co.,** warehousing subsidiary of the **U. S. Steel Corp. Frederick L. Bruckner** and **Arthur W. Johnson** are assistant district managers . . . After nearly 50 years of service in the paint industry, **Phil C. Frayser,** merchandising manager of the **Martin-Senour Co.,** Chicago, is to retire soon . . . **Wm. J. McGraw** is manager of the Cleveland, Ohio, branch of the **Independent Pneumatic Tool Co.,** Aurora, Ill. . . . **Geo. T. Williams** has resigned as manager of **The Contractors' Equipment Dept.** of **The Mine & Smelter Supply Co.** His address is 3064 Clermont St., Denver 7, Colo. . . . **J. C. Witt** is now consulting engineer of the **Marquette Mfg. Co.,** Chicago . . . **John F. Hall** is district engineer in charge of the New York office of the **Portland Cement Association,** succeeding **E. M. Fleming,** retired . . . **James M. Herring** is service manager of the **Osgood Co.,** Marion, Ohio . . . **Neal R. Fosseen,** president of the **Washington Brick and Lime Co.,** Spokane, Wash., has been elected to represent the Pacific Coast region on the board of directors of the **National Clay Pipe Mfrs. Assn. . . . Geo. C. Delp,** president of the **New Holland (Pa.) Machine Co.,** has been elected a vice-president of **The Sperry Corp.** . . . **H. X. Eschenbrenner,** president of the **Universal Concrete Pipe Co.,** Columbus, Ohio, and his son, **H. E. Eschenbrenner,** have returned from Europe where they visited concrete pipe manufacturing plants in England, France, Belgium, Switzerland and Germany . . . **Richard C. Lawton** is district engineer for western New York state at Rochester for the bearings division of **The Torrington Co.,** Torrington, Conn., and South Bend, Ind. . . . **W. W. Acuff** is regional manager for the eastern region, building products division, **Reynolds Metals Co.** . . . Appointments of **F. Penn Holter, Charles R. Shields, Charles K. Skinner** and **Frederick V. Courtade** to new positions have been announced by the Construction Materials Department of the **General Electric Co.** Mr. Holter has been

(Continued on page 143)

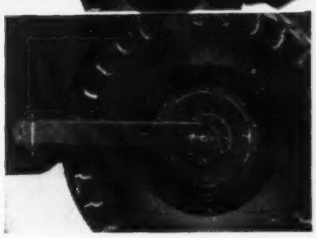
DUO-WAY SCOOP

A LIFT TRUCK

A TRACTOR

A LOADER

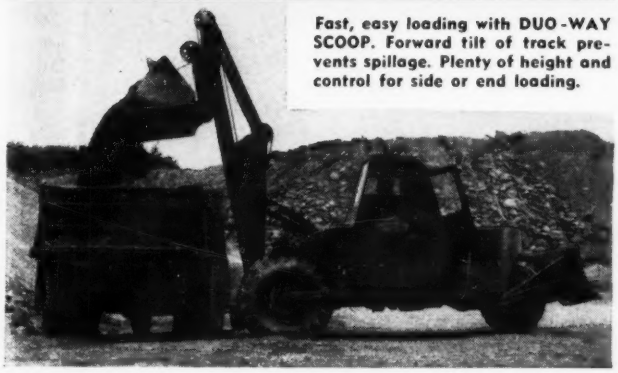
A DOZER



PLANETARY DRIVE

More power available without damaging equipment. A smooth, easy-operating variable speed transmission.

3000 lbs. down pressure normally applied to the 84" dozer blade. Ballast in scoop bucket gives still greater traction.



Fast, easy loading with DUO-WAY SCOOP. Forward tilt of track prevents spillage. Plenty of height and control for side or end loading.

FOUR MACHINES IN ONE!

Multi-purpose and power-packed, the WAGNERMOBILE DUO-WAY SCOOP can perform a multitude of tough jobs. Driver sits cross-ways in an enclosed cab with intimate control of both dozer blade and scoop bucket.

Outstanding features: Power steering, hydraulic controls, track tilts forward and back, track top section folds without loss of control of scoop, planetary drive.

Ask your nearest MIXERMOBILE dealer for a demonstration.

Manufactured by MIXERMOBILE MANUFACTURERS

Manufacturers of: SCOOPMOBILE
MIXERMOBILE
TOWERMOBILE
TOWERMOBILE-CRANE
DUO-WAY LIFT
DUO-WAY SCOOP
FOLDAWAY LIFT

WAGNERMOBILE
MIXERMOBILE MANUFACTURERS

MIXERMOBILE MANUFACTURERS

6855 N. E. HALSEY STREET, PORTLAND 16, OREGON

"and it shall be the duty..."

. . . of the members of the Truck Mixer Manufacturers Bureau, in the interests of our customers, to accurately conform to the standards established by the Bureau guaranteeing the size and capacity of truck mixers.

This is the guiding principle on which the Truck Mixer Manufacturers Bureau is founded. It is based on your best interests and ours! To you, it means that you can judge a truck mixer on its mechanical merits . . . you need have no worries about size and capacity . . . you can accurately establish those portions of your operating costs which are based on the capacity of the machine.

To us, it represents an essential protection against the loss of customer good will that might be caused by the confusion of a multiplicity of sizes . . . by constant changes in capacity with resultant early obsolescence of existing machines.

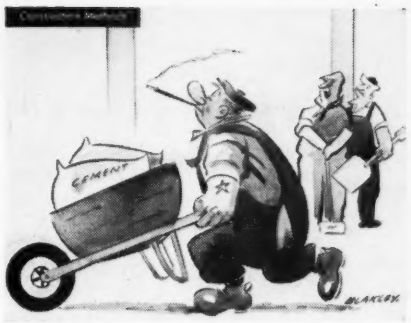
The rating plate of the Truck Mixer Manufacturers Bureau is your assurance of our constant conformance to these standards . . . your guarantee of capacity.

2 CUBIC YARD MIXER
GUARANTEED TO HOLD, MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
3 CUBIC YARD AGITATOR
N.R.M.C.A. REGISTRY No.

Truck Mixer Manufacturers Bureau

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION Pittsburgh, Pa.	CONCRETE TRANSPORT MIXER CO. St. Louis, Mo.	RANSOME MACHINERY COMPANY Dunellen, N. J.
CHAIN BELT COMPANY Milwaukee, Wis.	THE JAEGER MACHINE COMPANY Columbus, Ohio	THE T. L. SMITH COMPANY Milwaukee, Wis.



"There's that damn snob, Ryan, with his white-wall tire!"

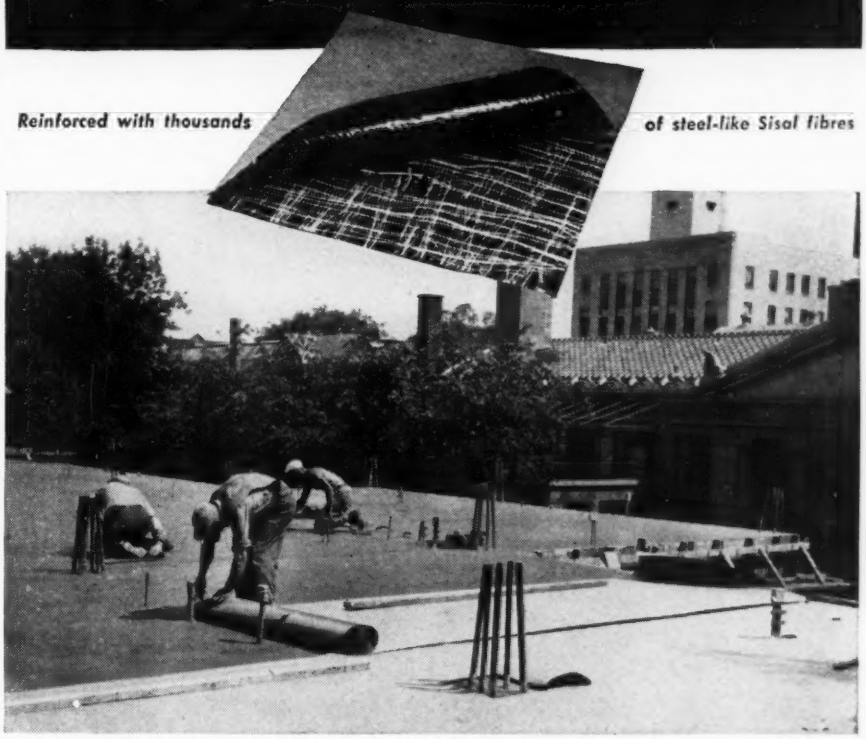
(Continued from page 140)

named assistant manager of manufacturing. Mr. Shields has been appointed manager of marketing service with headquarters at Bridgeport, Conn. Mr. Skinner has been named materials coordinator. Mr. Courtade becomes manufacturing engineer for the General Electric conduit products division.

MISCELLANY—Byrne Doors, Inc. has removed its offices and plant to new buildings—main office, 1421 East 8 Mile Rd., Ferndale, Detroit 20, Mich., and plant, 1501 Bonner Ave., Ferndale, Detroit 20, Mich. . . . The new eastern convector-radiator factory of the **Trane Co.,** La Crosse, Wis., is now in mass production at Scranton, Pa. . . . Lapel service pins have been awarded to 21 long-time employees at 15 **Universal Concrete Pipe Co.** plants . . . **Neptune Meter Co.** has acquired a controlling stock interest in the **Rensselaer Valve Co.,** Troy, N. Y. . . . **The Merrill Co.,** engineering, San Francisco, Calif., is to incorporate a subsidiary company, **The Merrill-Brose Co.** to carry on an agency department of eastern manufacturers, including **Yeoman's Brothers Co.** of Chicago. **Geo. Brosé,** vice-president, will be general manager of the new subsidiary which will look for distributorships . . . On Oct. 7 about 160 participants in the Georgia Better Farms tour were entertained by the Gary Works and the Gary Sheet and Tin Mill of **Carnegie-Illinois Steel Corp.** at Gary, Ind. . . . The second extension of plant facilities within a year—to cost $200,000 is now under way at **Kennametal, Inc.,** Latrobe, Pa. . . . The second materials handling conference sponsored by **Westinghouse Electric Corp.** will be held at Buffalo, N. Y., Nov. 8-9 . . . **Marquette Cement Mfg. Co.** has received three certificates of achievement in safety from the U.S. Department of the Interior, Bureau of Mines, in recognition of its outstanding record of safety in operations at Marquette quarries in Oglesby, Ill., Cape Girardeau, Mo., and Earlham, Ia. . . . **SKF Industries, Inc.,** ball and roller bearings, marked the first year of operations of its plant

(Continued on page 146)

MAXIMUM PROTECTION MINIMUM COST with SISALKRAFT



SISALKRAFT used for curing and protection of concrete floors of multi-story building

CLEAN and DUST-FREE FLOORS
AT REDUCED COST!

SISALKRAFT is so strong it furnishes positive protection from debris and construction stains, and prevents marring. It also affords dependable frost-protection. It is so light-weight, it can be rolled into place easily and be removed quickly. Economical . . . can be used many times over.

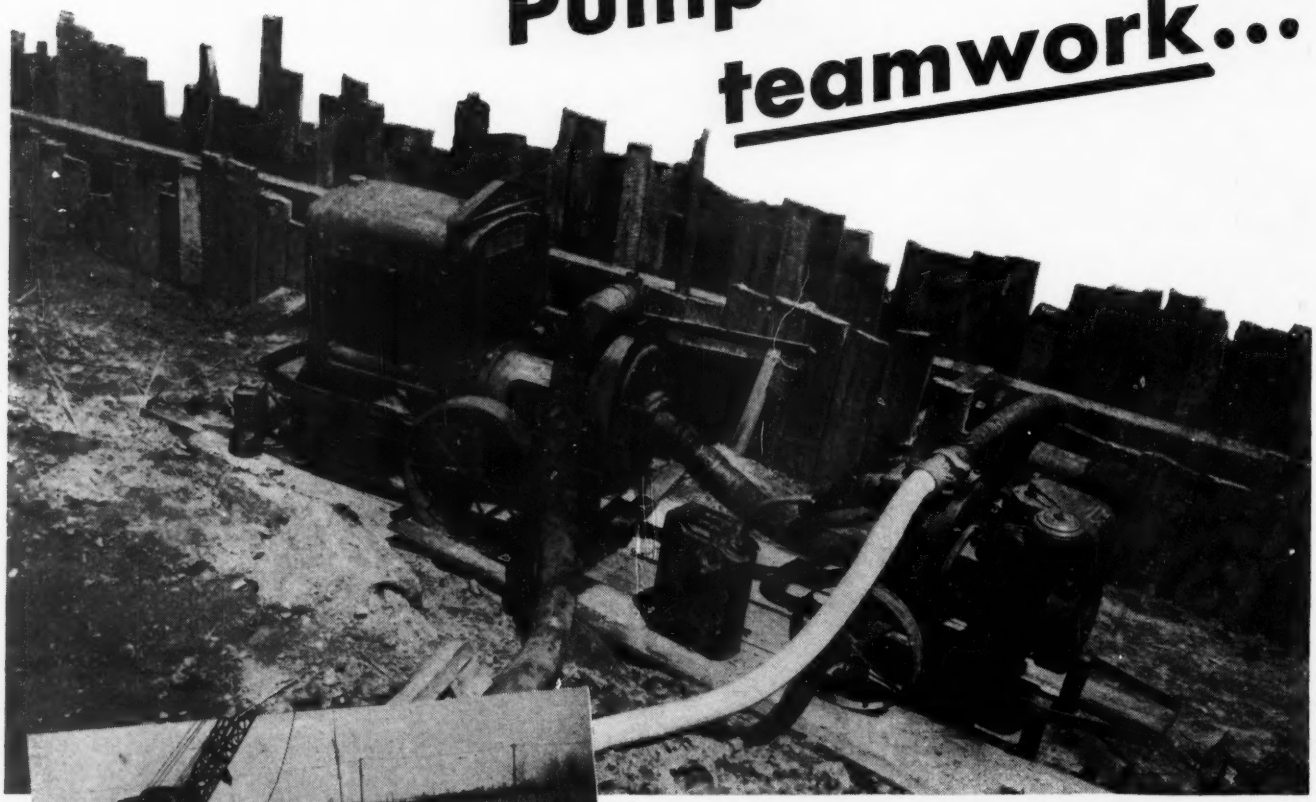
The SISALKRAFT Method of curing and protection is used not only on buildings of concrete construction, but also, in a big way, on concrete highways. This modern method is automatic . . . no watching, no sprinkling, no other covering. The SISALKRAFT Method is a "natural" for you on single-story and multi-story jobs . . . also for driveways, sidewalks and roads. For complete data write Dept. CM.

PROMPT DELIVERY!

The SISALKRAFT Co., 205 WEST WACKER DRIVE, CHICAGO 6, ILL.

Manufacturers of . . .
SISALKRAFT • SISALATION • COPPER ARMORED SISALKRAFT • FIBREEN • SISALTAPE

Pump teamwork...



Marlow Water Wizard, 4-in. and 3-in. models, team up to keep the ditch dry on this pipe laying job through Canarsie, Brooklyn, N. Y.

...day after day until the job is done!

MARLOW WATER WIZARD
Self-Priming Centrifugal Pumps

It takes a good pump to stand up to continuous pumping day in and day out. This picture shows *two* good pumps . . . both Marlow Water Wizards . . . at work to keep this big job progressing smoothly.

Pump trouble has no place in such a picture. Here a contractor wants dependability . . . Water Wizard dependability . . . the kind that keeps men and other equipment on the job. That's the teamwork that saves a contractor money. It's the teamwork for which the soundly engineered, ruggedly constructed Marlow Self-Priming Centrifugal Pumps are famous.

Sizes 1½- to 10-inch, capacities 3000 to 240,000 GPM. High- and low-pressure models. Skid-base mounted or on steel or pneumatic wheels. Gasoline, Diesel, electric or belt-driven. Described in Marlow's new construction pump bulletin C-48. A copy will be sent you promptly.

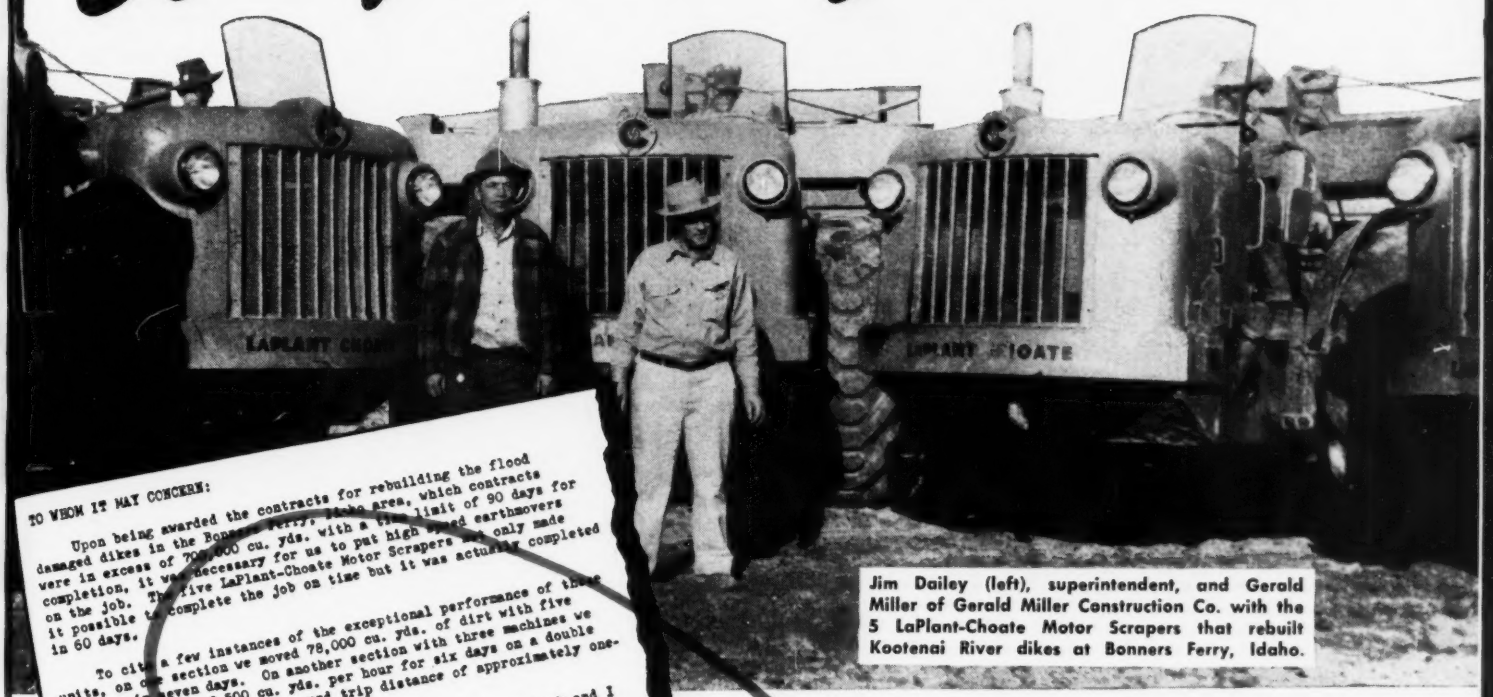
MARLOW PUMPS · RIDGEWOOD, NEW JERSEY

Manufacturers of the World's Largest Line of Construction Pumps

5 LPC MOTOR SCRAPERS

complete 700,000-yard earthmoving job

30 days ahead of schedule



Jim Dailey (left), superintendent, and Gerald Miller of Gerald Miller Construction Co. with the 5 LaPlant-Choate Motor Scrapers that rebuilt Kootenai River dikes at Bonners Ferry, Idaho.

TO WHOM IT MAY CONCERN:

Upon being awarded the contracts for rebuilding the flood damaged dikes in the Bonners Ferry, Idaho area, which contracts were in excess of 700,000 cu. yds. with a time limit of 90 days for completion, it was necessary for us to put high speed earthmovers on the job. The five LaPlant-Choate Motor Scrapers not only made it possible to complete the job on time but it was actually completed in 60 days.

To cite a few instances of the exceptional performance of these units, on one section we moved 78,000 cu. yds. of dirt with five machines in seven days. On another section with three machines we moved an average of 500 cu. yds. per hour for six days on a double shift or 20 hour day over a round trip distance of approximately one-half mile.

I have had several years experience in construction work and I feel that these pieces of equipment are the most modern machines there are on the market today.

Gerald Miller

Gerald Miller, Contractor

October 13, 1948

Gerald Miller rebuilds Kootenai River dikes at Bonners Ferry, Idaho, in record time under difficult conditions.

BIG POWER—16 h.p. per struck yard; and big tires—21 x 29:00! These features of LaPlant-Choate Motor Scrapers enabled Gerald Miller to complete this tough earthmoving job way ahead of schedule. In spite of soft, spongy borrow pit and haul road, the five units picked up capacity loads in 50 to 70 seconds and dumped them in 15 seconds.

Join the fast growing number of contractors who have replaced their earthmoving equipment with high speed LaPlant-Choate Motor Scrapers. You can start building up your fleet without waiting. See your nearest LPC distributor for details. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; 1022 77th Ave., Oakland, Calif.

LAPLANT CHOATE

HIGH SPEED EARTHMOVING EQUIPMENT

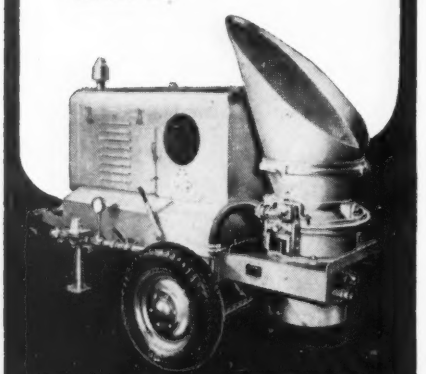
MONEY MAKER

JETCRETE GUN

•SHOOTS STRONGEST CONCRETE FASTER

"Welding with Concrete" best describes the new CMC JETCRETE method of pneumatically applying concrete. JETCRETE *is the most nearly perfect concrete known today.* Wherever and whenever used, JETCRETE has done the job *better, faster —and at lower cost! The machine with a thousand uses!*

- *BUILDING* . . . walls, roofs, partitions, fences, fire retards, etc.
- *REPAIRING* . . . Disintegration of all kinds—old buildings, bridges, stacks, bunkers, dams, etc.
- *WATERPROOFING* . . . Reservoirs, tunnels, tanks, drains, fissures, water basins, etc.
- *FIREPROOFING* . . . Wood, structural steel . . . buildings and mines, etc.
- *PRESERVING* . . . Brick, concrete, steel, tile, stucco, wood, iron, spillways, turbine chambers, piers, sewers, tunnels, etc.



Write for illustrated bulletin No. JG-348 showing JETCRETE in action.

CONSTRUCTION MACHINERY COMPANIES
WATERLOO, IOWA

(Continued from page 143)

at Hornell, N. Y., with a "family day" at which some 500 employees and others were guests . . . **Acme Millwork, Inc.,** has moved into a new plant at Kirkland, Wash., its sales offices remaining at 933 Westlake Ave., Seattle 9, Wash. . . . Establishment of a Pacific Coast division of **Owens-Corning Fiberglas Corp.** and the appointment of **L. R. Kessler** as its general manager have been announced. The fifth U.S. plant of the company is being built at Santa Clara, Calif. . . . Operations at the newest **U.S. Plywood Corp.** plant at Shasta, Calif., probably will reach a production rate of 60,000,0000 sq.ft. per year by Jan. 1. . . . About 25 foreign students have gathered at **Worthington Pump** and **Machinery Corp.'s.** Harrison, N. J., plant to start a 6-months' training program on pumping equipment, condensers, feedwater heaters, water softening, diesel and gas engines, compressors, power transmission equipment, steam turbines, rock drill, air conditioning and refrigeration equipment. Part of the course will be at the Buffalo and Wellsville, N. Y., and Holyoke, Mass., plants . . . **The Federal Bearings Co., Inc.,** Poughkeepsie, N. Y., has announced price increases varying according to type of product. The reason—continually mounting material and operating costs.

Electric Sprayit Co., Sheboygan, Wis., will produce the stationary compressors formerly made by **The Auto Compressor Co.,** Wilmington, Ohio . . . **Preco Inc.,** Los Angeles, has agreed with **Caterpillar Tractor Co.,** Peoria, Ill., to manufacture No. 1 and 2 terraces for sale through Caterpillar distribution channels . . . The 20th anniversary of **The Tremco Mfg. Co.** was celebrated recently at Cleveland. Company makes mastic specialties, waterproofings, paints and protective coatings . . . Production of "golden" plate glass has been resumed by **Libbey - Owens - Ford Glass Co.** at its Rossford, Ohio, plant . . . **Irving Le Beau,** export manager of **Wisconsin Motor Corp.,** is visiting his company's distributors in 15 countries of the Caribbean and Central American areas . . . A new gray-iron foundry has been occupied by **The Huber Mfg. Co.,** Marion, Ohio, manufacturers of roadbuilding and maintenance equipment . . . **Robt. N. Kelly** is the regional field representative of the **Douglas Fir Plywood Assn.** at the 500 Fifth Ave., Building, New York 18, N. Y. . . . **The Machinery & Allied Products Institute** has organized a Council for Technological Advancement to aid constructive planning in the capital goods industries to emphasize their relationship to national economy. . . . A new $2,000,000 plant addition is under way for the **Wright Rubber Tile Co.** in Houston, Tex. . . . A million dollar long-range research program for the brick and tile industry has been proposed to the **Structural Clay Products Institute** . . . **E. H. Kliebenstein Co.** and **Tyler-Preusser Inc.,** have been appointed distributors for Gradall of **The Warner & Swasey Company,** Cleveland. Kliebenstein will handle sales and service for northern New Jersey, from Hendricks Causeway, Ridgefield, N. J. **Tyler-Preusser Inc.,** Boston Post Road, Pelham Manor, N. Y., will service the metropolitan New York and Long Island area.

Wallace & Tiernan, Belleville, N. J., recently celebrated its 35th anniversary. **Charles F. Wallace** and **Martin F. Tiernan,** founders, were present. Wallace and Tiernan and associated companies are prominent in the field of water purification . . . Construction of a steel warehouse serving the greater New York area is nearing completion **by Republic Steel Corp.** in Long Island City . . . The **Lehigh Navigation Coal Co., Inc.,** has announced the formation of

(Continued on page 148)

MAYO PNEUMATIC GROUTER

A Simple and Efficient Machine for Placing Low-Pressure Grout in Tunnels, Mines, Shafts and Foundations. It can be used on Railroad Subgrades and can be easily converted into a "Pea Shooter."

Write for Bulletin No. 13 which describes this Grouter, and Discusses the aplications of Grouting.

ROBERT S. MAYO
CIVIL ENGINEER
LANCASTER, PENNA.

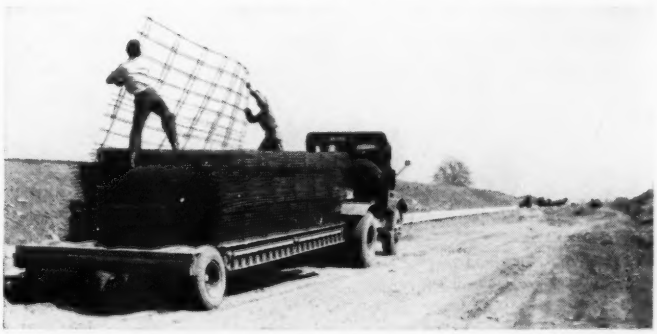
Specializing in the Design of Equipment for Tunnels and Mines: Steel Forms, Tunnel Shields, Air Locks, Jumbos and Head Frames.

Relocating Part of U.S. Route 422

The dust flies as truck empties load into skip. To keep ahead of paving operations, newly arrived dowel units are unloaded from truck at right.

Scraper wagon and roller lecd the parade as grading swings into high gear.

Placing Bethlehem Dowel Unit. For use either as expansion joint or contraction joint, this unit keeps dowels in near-perfect horizontal and vertical alignment.



Bethlehem Hinged Bar Mats, popular with road builders because of their remarkable ease of handling and installation, are shown being delivered to job.

Benjamin H. Fager (center), foreman for C. W. Good, Inc., with Wade D. Brandt (left), and M. H. Mosser, inspectors, Pa. Dept. of Highways.

To cope with fast-growing traffic conditions on Route 422, express highway from Philadelphia to Harrisburg, Pa., approximately five miles of relocation were authorized recently in the Robesonia-Sinking Springs area. The new highway is three lanes in width, and includes five reinforced concrete bridges. The accompanying photographs show construction activity being carried out by C. W. Good, Inc., Lancaster, Pa. Reinforcing bars, structural steel, bar mats, dowel units and guard rail were supplied by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
Hollow Drill Steel • Spikes • Bolts and Nuts
Timber Bridge Hardware • Tie-Rods
Sheet and H-Piling • Fabricated Structural Steel

BETHLEHEM STEEL

Parmanco

MECHANICAL FEED
HORIZONTAL DRILL
WITH TRACTION DRIVE

Ten years of field test has proven that our power-feed design of direct, transmission and worm gearing with two-speed control will not only cut shot hole drilling time in half but also eliminates costly maintenance delays. V-belt drive to the power-feed with an additional ample clutch in that assembly gives absolute control of a drilling speed of two to three feet per minute with a retrieving speed of twenty-four feet per minute.

The Parmanco Horizontal is adapted to all forms of high-wall drilling, will handle a six-inch auger up to a distance of sixty feet or more and, by use of our patented augers with interrupted flights and secondary cutters, will drill an absolutely clean hole with a minimum of torque. It permits the drilling of a controlled-angle hole which makes possible a great saving of explosives through the cantilever effect of this controlled-angle drilled hole.

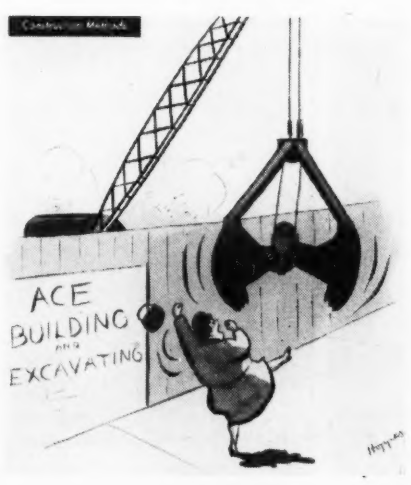
EFFICIENT STRIPPING STARTS WITH EFFICIENT DRILLING

PARIS MANUFACTURING COMPANY

PARIS, ILLINOIS

(Continued from page 146)

a wholly-owned subsidiary, **Lehigh Materials Co.,** and the construction of a plant to produce Lelite, a lightweight aggregate. Main office, Lansford, Pa., and sales office, 143 Liberty St., New York City . . . **Cliffs Construction Co.,** Youngstown, Ohio, has been formed for heavy industrial moving and construction, structural steel and iron work, and field welding. It is headed by **Charles S. McKinney** . . . **Masonite Corp.,** Chicago, manufacturers of hardboards, plans to acquire ownership of at least 80 percent of the outstanding stock of **Marsh Wall Products, Inc.,** of Dover, Ohio . . . A customer service department has been established by **Binks Mfg. Co.,** 3114 Carroll Ave., Chicago. The department is under **Joseph Vokoun,** with the company for 20 years . . . To help alleviate the nickel shortage, **New Jersey Metal Co.,** Elizabeth, N. J., is adding to its staff and expanding plant facilities and equipment to smelt and refine secondary nickel, its alloys, and other nickel-bearing products. Added to personnel are **Joseph F. Sweeney** and **Wm. J. Swett,** formerly with the **International Nickel Co., Inc.** . . . **Clarence E. Witherspoon,** president of the **Asbestos Construction Co., Inc.,** 607 West 29th St., New York City, was honored Nov. 5 at a dinner at the Engineers' Club to celebrate the 25th anniversary of the founding of the company. The dinner was given by **Johns-Manville Corp.** . . . Promotion of **T. J. Zeller** to factory manager of its Allentown, Pa., plant, succeeding **C. J. Moran,** and advancement of **A. C. Schliewen** to manager of its Plainfield, N. J., plant, succeeding **Mr. Zeller,** has been announced by **Mack Trucks, Inc.** Mr. Moran has been transferred to Mack's western sales headquarters in Los Angeles, Mr. Zeller assumes direction of the company's largest plant, in which all Mack trucks and buses are assembled, such components as cabs and front ends, frames and axles are manufactured.



Yes, you can know *in advance* the exact capacity of a mixer or Paver *IF* it wears an AGC Rating Plate. The Plate guarantees capacity and size . . . a guarantee backed by the Mixer Manufacturers Bureau. The Bureau has set up standards for your protection and before any mixer or paver can wear this assurance of accuracy, it must live up to these rigid standards.

When you're making an estimate, you'll know just what you can expect from your equipment. You'll save time, material and money.

Don't gamble the next time you buy a mixer or paver. Be assured of exact capacity in advance by standardizing on equipment wearing the AGC Rating Plate. You'll find it pays!

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Affiliated with the Associated General Contractors of America, Inc.

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Milwaukee, Wis.

Construction Machinery Co.
Waterloo, Iowa

Koehring Company
Milwaukee, Wis.

Ransome Machinery Co.
Dunellen, N. J.

Kwik-Mix Company
Port Washington, Wis.

The Foote Co., Inc.
Nunda, N. Y.

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Jackson, Mich.

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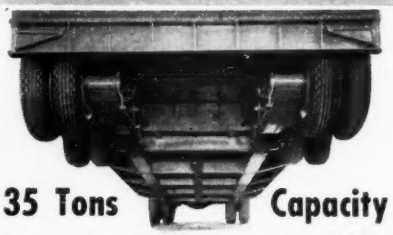
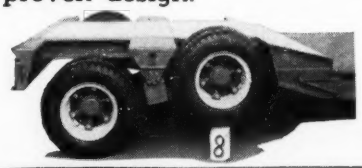
ROGERS
Rocking Beam Trailer



35 Tons Capacity in only 8 feet of width

Special construction affords an unusually low bed.

Trailer embodies characteristic features of Rogers proven design.



ROGERS BROTHERS CORPORATION
220 Orchard Street
ALBION, PA.
EXPERIENCE builds 'em
PERFORMANCE sells 'em
ROGERS HEAVY DUTY Gooseneck Trailers

New Way to CLEAR LAND FASTER

On jobs in wooded country, you save days in land-clearing—or any kind of timber-cutting—with McCulloch full-swivel chain saws.

The McCulloch, with the Rip-Cross chain, will rapidly fell, buck, and rip any kind of wood. It's a *heavy-duty* saw that's really *light.* The McCulloch can go anywhere—in steep and rough country where heavy machinery would bog down.

★ Weighs only 45 lbs. complete with 20" blade and chain

★ 5 models (20 to 60 in. blades) for trees to 5 feet in diameter

★ Full 5 hp...Chain is easily sharpened by hand filing

CUT YOUR COSTS Many construction men are not familiar with what chain saws do—and thereby miss a bet in figuring costs. Send for information. We'll be glad to answer your questions.

McCULLOCH MC CHAIN SAWS

FELLS LARGE TREES CLOSE TO GROUND

SEND for detailed information

McCULLOCH MOTORS CORPORATION
6101 W. Century Blvd., Dept. MC
Los Angeles 45, Calif.

SLABS TIMBER IN THE FIELD

BUCKS ANY LOG QUICKLY

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :(Used or Resale)

UNDISPLAYED ——RATES—— DISPLAYED

$1.20 per line minimum 4 lines. To figure advance payment count 5 average words as a line.

Positions Wanted (full or part time salaried employment, only) ½ the above rates payable in advance.

Box Numbers—Care of publication New York, Chicago or San Francisco offices count as one line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Individual Spaces with border rules for prominent display of **advertisements.**

The advertising rate is $9.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on one column, 3 columns—30 inches—to a page.

C.M.

REPLIES (Box No.):
Address to office nearest you.
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITION VACANT

ENGINEERS: LARGE college offers $3000, approx. half time teaching-studying. All ranks univ. positions, experienced $4500-$6500 nine months. Give phone, photo, qualifications. Cline Teachers Agency, East Lansing, Mich.

FOR SALE
MACHINERY COMPANY
MANUFACTURING BUILDING AND ROAD CONTRACTORS EQUIPMENT

Fine Pennsylvania plant. Almost half century of successful operation. International reputation. Operating personnel intact. Opportunity for manufacturer to broaden line and extend field of operation. Must be sold to settle estate. *Write:*

BO-7050, CONSTRUCTION METHODS
330 W. 42nd St., New York 18, N. Y.

WE SOLICIT INQUIRIES

FOR MINIMUM CARLOAD QUANTITIES

NEW PLAIN HOT ROLLED MILD STEEL PLATES—min. 3/16" to 1" inclusive

NEW PLAIN HOT ROLLED AND ANNEALED MILD STEEL SHEETS—8 gauge to 28 gauge inclusive

NEW HOT ROLLED MILD STEEL ANGLES—1"x1"x⅛" to 6"x6"x½" inclusive

NEW MILD STEEL PLAIN AND DEFORMED ROUND REINFORCING BARS—⅜" to 1¼" inclusive

All specifications within the range of sizes listed are available. Check with us for early delivery dates.

FABRIKANT
STEEL PRODUCTS, Inc.

50th Floor—Woolworth Bldg., New York 7, N. Y.
BEekman 3-3041
CABLE ADDRESS: FABKANT, NEW YORK
Member: Association of Steel Distributors

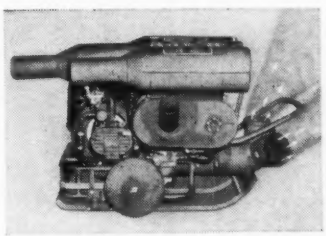
PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL
Registered Patent Attorneys

Patent Practice before U.S. Patent Office, Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request.

Suite 417, 815-15th St., N.W., Washington 5, D.C.

PORTABLE HEATER SALE



STEWART - WARNER portable powerful 100,000 BTU gasoline-burning heaters complete with turbine type blower, flexible ducts and 1½ HP. air-cooled ball-bearing engine. Excellent operating condition guaranteed.

PORTABLE SELF-POWERED MANY PURPOSE HEATER

HEATING buildings, shops, sheds, warehouses, manholes, tunnels, buildings under construction, spot-heating, etc.

PRE-HEATING engines, tractors, trucks, equipment, etc.

THAWING frozen areas, machinery, pipe lines, tanks, etc.

DRYING plaster, paint, mortar, concrete, etc.

Original Cost.....$583.00

SALE PRICE.....$195.00

SEND FOR LITERATURE

BERNSTEIN BROTHERS
SINCE 1890
PUEBLO, COLORADO

FULL VIEW . . . JOB AHEAD WITH SITTING COMFORT

Living room comfort in a chair designed for Power Shovels, Cranes, Tractors, Graders, etc.

All metal . . . can be raised from 19" to 28" by hand lever. Seat moves forward or backward. Chair bolts down tight. Built for government . . . stands hard service. Now selling at ..... **$15** far below the price of production.

WEIL'S
20 South 2nd St.
Phila. 6, Pa.

WHERE TO BUY

Featuring Additional Products, Specialties & Services for the Construction Industry

COMPLETE
WELL POINT SYSTEMS
WILL DRY UP ANY EXCAVATION
Faster—More Economically
Write For Job Estimate and 32 page Catalog
COMPLETE
MACHINERY & EQUIPMENT CO., Inc.
36-36 11th St., Long Island City, N. Y.
Tel. IRonsides 6-8600
Branch: Third Avenue & Adams St., Gary, Indiana
Telephone: Gary 23983

Waterproof with Formula No. 640

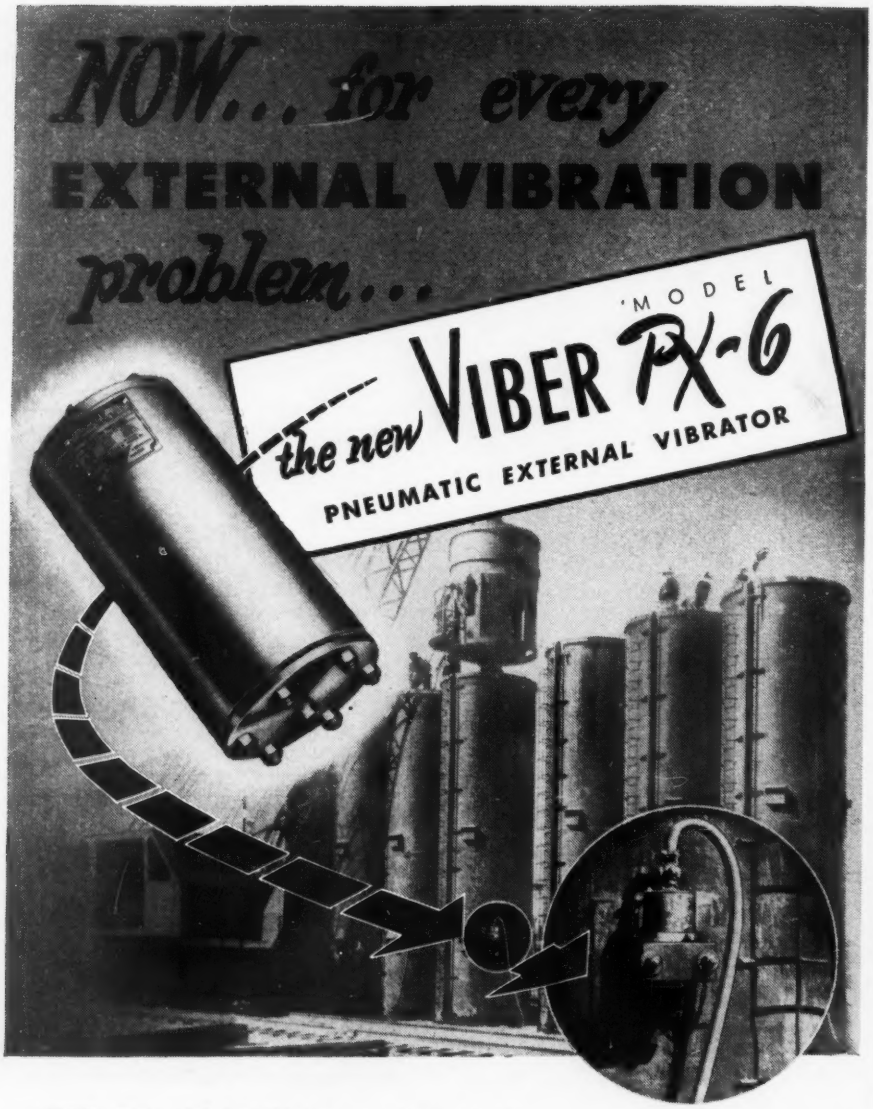
A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

ATLAS CONCRETE FORMS
Walls • Cylinders
Floors • Sewers
Irvington
FORM & TANK CORP.
Irvington 45, N. Y.

This
WHERE TO BUY
Section

supplements other advertising in this issue with these additional announcements of products and services essential to official and economical operation in the construction industry.



The Viber Model PX-6, primarily designed for concrete pipe manufacture, has since proven equally effective in other fields such as in the manufacture of concrete products, and in the handling of dry materials.

5 Reasons for Outstanding Versatility in the PX-6

1. Operates at desired amplitude over a wide range.
2. Operates at desired speed over a wide range.
3. Produces marked improvement in the manufacture of concrete pipe from the smallest to the largest.
4. With proper balance of amplitude and speed, greatly increases the life of the forms.
5. May be mounted at any angle.

SPECIFICATIONS

SIZE: Diameter 5½ inches; length 12 inches.

NET WEIGHT: 40 pounds.

ECCENTRIC WEIGHT: Available over a wide range of sizes.

VIBRATING SPEED: Desired speeds are obtained by regulation of the air pressure.

POWER: Dependable vane type pneumatic motor.

COOLING: Cooled by circulation of exhaust air through the housings.

Mounting Clamp, Carrying Handle
Available as extra equipment.

For complete details of the VIBER Model PX-6 Pneumatic *External* Vibrator—or assistance on any concrete placement problem involving *internal* vibration—*write or wire:*

VIBER CO. CONCRETE VIBRATORS
EST 1931 Dept. 19, 726 South Flower Street · Burbank, California

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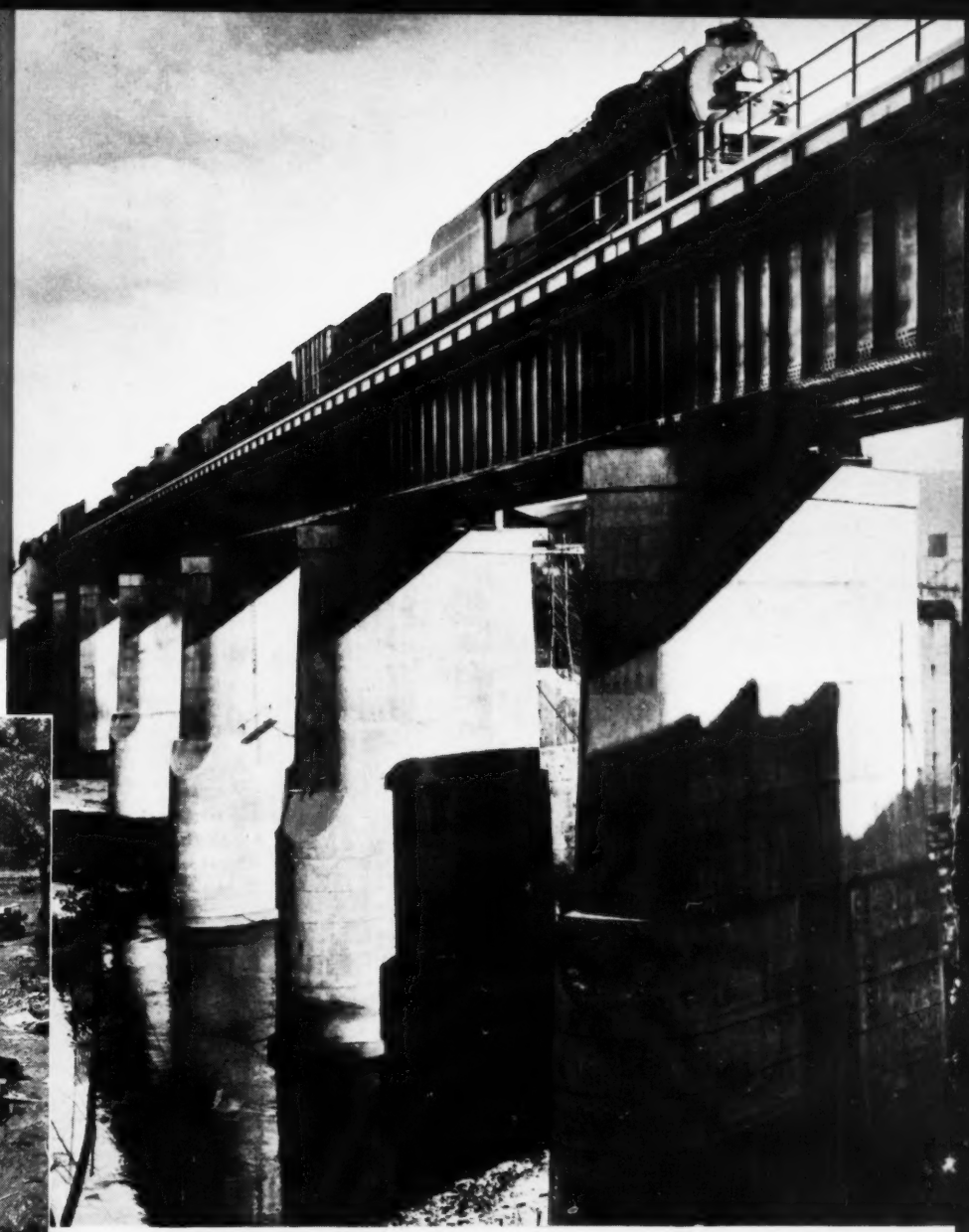
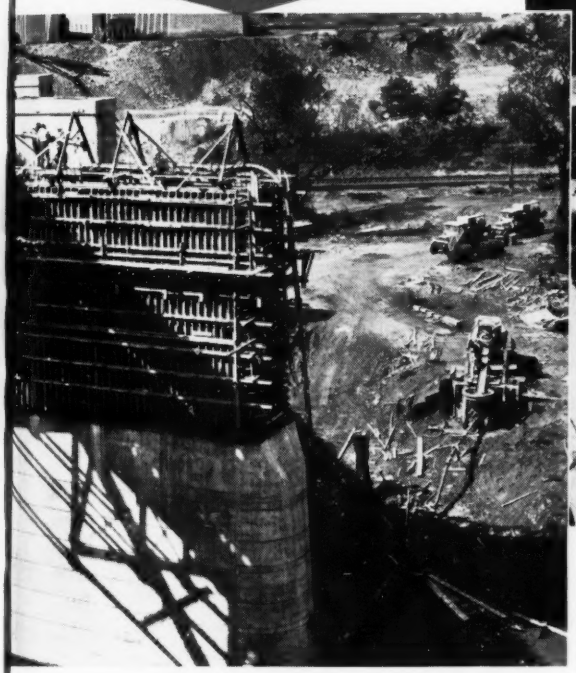
POZZOLITH CONCRETE HERE . . .





Reading Railroad Co., Bridge, Across Schuylkill River, Reading, Pa. Private Plans. Contr.— Empire Construction Co., Baltimore, Md. Pozzolith Ready-Mixed Concrete supplied by Reading Ready-Mix Concrete Co., Reading, Pa.

In addition to producing the easy placeability and good cohesiveness required for this pumped concrete job, Pozzolith, cement dispersion, provided these important advantages:

1. REDUCED PLACING COSTS
2. DENSE, WATERTIGHT CONCRETE
3. GREAT DURABILITY

Pozzolith, Cement Dispersion, conforms with the water-cement ratio law — basis of ACI (613-44) and ASTM (C94-47T) methods for concrete design, specification and production. Pozzolith produces required concrete properties at lowest cost.

Write for further information and Pozzolith booklet.

The MASTER BUILDERS Co.

CLEVELAND 3, OHIO — TORONTO, ONTARIO

Roll crusher mounted on Timken® bearings doesn't mind the grind

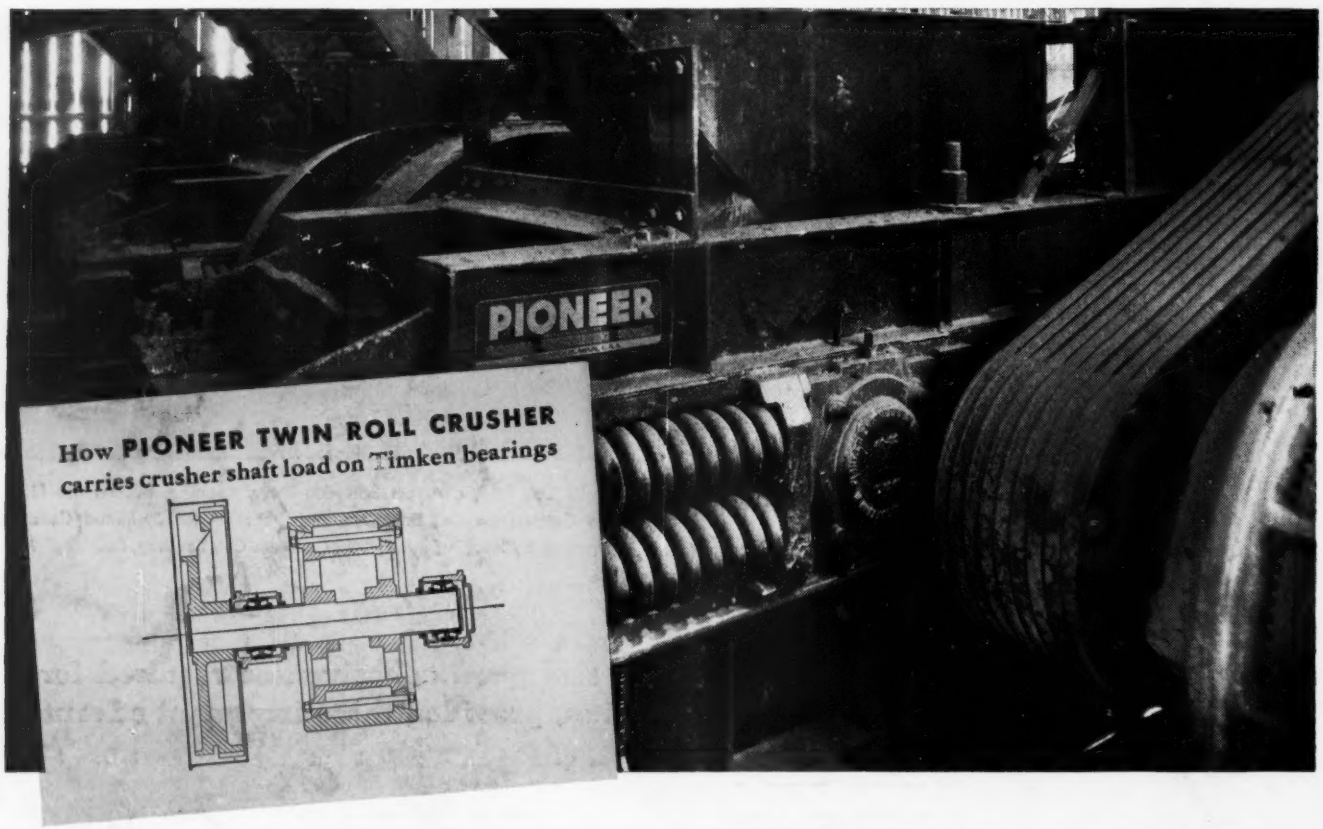
IN the Pioneer Twin Roll Crusher, every revolution of the crusher shaft means heavily stressed loads for the Timken bearings on which it's mounted. But even under conditions of constant, heavy service, Timken bearings require a minimum of maintenance and normally last the life of the machine.

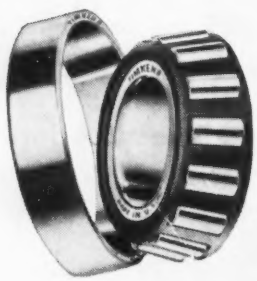
Timken tapered roller bearings are made from the finest bearing steel ever developed—Timken fine alloy steel. Due to the line contact between rolls and races, Timken bearings have tremendous load carrying capacity. Their true rolling motion and incredibly smooth surface finish enable Timken bearings to operate freely, frictionlessly.

Timken bearings permit the use of closures which effectively retain lubricants, saving both maintenance time and materials. And they take any combination of radial and thrust loads.

No other bearing can give your equipment *all* the advantages you get from Timken bearings—backed by 49 years of bearing research and development. Use them on all the equipment you buy or build, and look for the trade-mark "Timken" every time. The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN BEARING EQUIPPED — *This symbol on a product means its bearings are the best.*

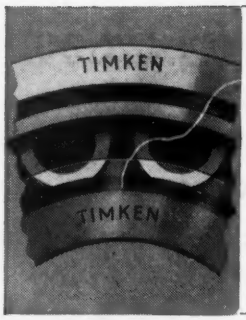




TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



POSITIVE ROLLER ALIGNMENT

Wide area contact between roll ends and rib of the cone prevent Timken roller bearings from skewing. Result: bearings roll easier, last longer.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis steels.

NOT JUST A BALL — NOT JUST A ROLLER — THE TIMKEN TAPERED ROLLER — BEARING TAKES RADIAL AND THRUST — LOADS OR ANY COMBINATION

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